Chapter 3 - Affected Environment and Environmental Consequences

Introduction

This chapter discloses the affected environment and environmental consequences of the alternatives on the sixteen Analysis Units (AU) which define the project area and include the Ansel Adams, John Muir, Kaiser and Dinkey Lakes Wildernesses as well as non-wilderness areas within the Sierra National Forest (SNF). To facilitate the discussion, fifteen AUs have been established within the project area covering approximately 137,587 acres (Figure 3.1). The sixteenth AU (Ansel Adams and John Muir Wildernesses) is being presented though operations in these wilderness areas is delineated and analyzed in the 2005 Pack Stock Management EIS and are not repeated in full in this document. The discussions below are organized by human, physical and biological environment and appropriate references are cited within the pertinent resource discussions. Analysis Units are organized from the north, starting with NED AU on the Bass Lake Ranger District, to the south, ending with the WIS AU on the High Sierra Ranger District.

Figure 3.1: Map of the Sierra National Forest showing the location of the project Analysis Units including the Ansel Adams and John Muir Wildernesses. Map scale is 1:650,000.

Organization

As described in FSM 1909.15, an EIS is required to discuss the Affected Environment and Environmental Consequences. Region 5 of the Forest Service suggests that both these discussion can be melded into one chapter (Forest Service Region 5 EIS Template policy direction).

To aid the reader, the analysis of each resource (e.g. watershed, wilderness, botanical resources, etc.) has been organized into the following subheadings:

Background
This section provides the reader with information which may include history, current research findings, and information from other pertinent environmental documentation efforts.

Methodology
This section provides the reader with information on what types of data was collected and how it was collected. It includes a discussion of the analysis elements selected for the particular resource to guide the analysis of environmental consequences (effects). For example, this section could describe that data was collected in the field by an interdisciplinary team, and/or individual specialist, and/or a file search of known field data was used for the basis of the analysis.

Affected Environment – Overview
This section provides the reader with an overview of affected environment and information common to all analysis units. The affected environment is a succinct description of the environment of the area(s) that would be affected by the alternatives under consideration. In some cases where the resource type (e.g. watershed) is very broad in scope or area, this section may describe the majority of the affected environment.

Environmental Consequences – Overview
This section provides the reader with an overview of environmental consequences and those common to all analysis units. The environmental consequences discussion forms the scientific and analytic basis for the comparison of the alternatives.

Like in the affected environment discussion above, there are some resource types where this section would describe the majority of the environmental consequences (including direct, indirect and cumulative effects). A brief summary of the environmental consequences (effects) for each resource is located at the end of Chapter 2 in Table 2.24.

Cumulative Effects – Overview
This section provides the reader with an overview of how the effects of this project add to the effects of other actions, past, present and in the foreseeable future.

Analysis Units

This section provides the reader with information specific to each Analysis Unit, affected environment and direct, indirect and cumulative environmental consequences (effects). Analysis Units are organized from north (NED) to south (WIS) across the SNF. See Table 3.1 for a list of Analysis Units that identifies the abbreviation, Ranger District, wilderness status, and pack stations operating within each AU.

Table 3.1: Analysis Unit Summary

Analysis Unit	Abbreviation	Ranger District	Wilderness	Pack Stations
Nelder	NED	BL	N/A	YTPS, MPS
Clover	CLO	BL	N/A	MPS
Edison	EDI	HS	N/A	D&F, HSPS
Chinquapin	CHQ	HS	N/A	D&F, HSPS
Florence	FLO	HS	N/A	D&F, HSPS, LVPS, MTR
Kaiser	KAI	HS	Kaiser	D&F
East Huntington	HNE	HS	N/A	D&F
West Huntington	HNW	HS	N/A	D&F
Coyote	COO	HS	Dinkey Lakes	CPO, D&F, HSPS
Dinkey Lakes	DIL	HS	Dinkey Lakes	CPO, D&F, HSPS
Helms	HEL	HS	Dinkey Lakes	CPO, D&F, HSPS
Nelson	NEL	HS	Dinkey Lakes	CPO, D&F, HSPS
Dinkey Front Country	DFC	HS	N/A	CPO
Tule Meadow	TUL	HS	N/A	CPO
Wishon	WIS	HS	N/A	CPO
Ansel Adams & John Muir	AA/JM	BL HS	AA/JM	All

Use and services in the Ansel Adams and John Muir Wildernesses (AA/JM) was analyzed in the 2005 Pack Stock Management EIS, and is incorporated by reference into this document. The AA/JM is referenced generally as the final analysis unit in each section.

The following sections are not organized by Analysis Unit:

- Operations: organized by business entity;
- Economics: organized at the appropriate economic scale;
- Wilderness: organized by Wilderness Area, which is the appropriate scale for evaluating wilderness character;

Background

Pack Station Industry History

Recreational packing in the Central Sierra began in Yosemite Valley in the late 1800s. In the next decades, families and other groups from communities on both sides of the crest explored and camped in the high country with horses and mules (Farquhar 1925, 1965).

The founding of the Sierra Club in 1892 focused widespread public interest on visiting and preserving the Sierra Nevada environs. Soon the Sierra Club began conducting trips into the Sierra Nevada. For the next 50 years the large Sierra Club High Sierra Trips kept packers busy. They were elaborate affairs, sometimes lasting up to eight weeks involving an average of 150 people, around 50 packers and long pack trains of up to 250 mules carrying 100 pound stoves and full-time cook crews (Farquhar 1965; Dilsaver and Tweed 1990; Jackson 2004)

When the SNF was established in 1906, regulations were instituted to control the degradation of public lands. These included the number of animals used, the allowed period of time for grazing, a requirement for grazing permits, a grazing fee, and the approval for structures such as out-buildings, tent sites, drift fences, and corrals. By 1920, a concessionaire's permit for packing operations was required. (Jackson 2004).

In the 1920s there were 36 large pack outfits operating in the southern Sierra Nevada; by 1935 pack outfits increased in the southern Sierra Nevada to 71 commercial businesses. The post WWII era pack stations numbered about 60 on both sides of the crest between Sonora and Walker Passes in 1947 (Livermore 1947). There was intense competition and customers demanded better service. Increased oversight by the Agencies required more stringent business practices such as liability insurance, performance bonds, financial reports, schedules of personnel and stock, and accounting of types and areas of services provided. Increasing costs of doing business (feed, salaries, stock, equipment, supplies, maintenance, and insurance), costs of pack station maintenance, and accounting/bookkeeping costs resulted in higher expenses. Pack outfits either lost money or barely met expenses (Jackson 2004).

Compliance with rules and regulations, however, was erratic and lax, primarily because enforcement was difficult (Jackson 2004). During the 1930s and 1940s most packers did not apply for permits to operate inside the national parks. In the 1950s and 1960s, some packers accepted the inevitable restrictions on both the national parks and national forests but complained that they were being put out of business because of them. Not accounting for fluctuations, the decline in the intensity of pack operations in the southern Sierra Nevada (from Yosemite National Park south) can be partly measured by the estimated number of stock owned, which ranged from 2764 head in 1935 to 1420 head in 1986, a 51% decrease. The number of pack outfits decreased to less than 50 in 1990. Major pack stations from the Kern Plateau to Silver Lake numbered 71 at a historical maximum and only 13 by 2004, an 82% reduction.

With the availability of lightweight back packing equipment and supplies in the 1960s and 1970s, hiking and backpacking significantly outpaced the use of pack stock by nearly eight to one (USDA Forest Service 1979).

Federal regulations and the difficulties of packing itself required packer operations to work together in order to maintain a viable business. This included cooperation between pack outfits and the Park Service and Forest Service. Some packers, for example, combined their stock for large parties and contributed to trail maintenance activities. To encourage cooperation the High Sierra Packer's Association, established in 1934 at the instigation of Ike Livermore, created guidelines for better business practices (Jackson 2004).

Cumulative Impacts

Past, Present and Reasonably Foreseeable Actions

According the Council on Environmental Quality (CEQ) NEPA regulations, "cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions (40 CFR 1508.7). In determining cumulative effects, the combination of the effects of the following past, present, and future actions with the direct and indirect effects of each alternative were considered.

Table 3.2: Past, Present and Reasonably Foreseeable Actions

Past or Present Activity Name	Affected Area
Vegetation Management/Actions	
Unmanaged livestock grazing from 1880s to 1930s, including cow camps, fencing, retention structure.	Forest wide
Mining	Nelder Analsis Unit (Biledo Meadow)
Managed livestock grazing 1930s-present: allotment management, TES protection, range improvements.	Forest wide
Closure of several high elevation wilderness allotments to commercial cattle grazing (mid 1940s-1960s and 1995)	John Muir and Ansel Adams Wildernesses: [(77 Corral (1964) , Minnow Creek (1950), Upper Mono (1953), Bear Creek (1946), Piute (1946), Florence (1946), Red/Black Cap (1953), Woodchuck (1953), Crown Valley (1947) and North Jackass (1995)].
Establishment and operation of the Big Creek Hydro Project	Bass Lake Ranger District and High Sierra Ranger District, COUNTY – Fresno and Madera: San Joaquin River, South Fork San Joaquin River, Big Creek, Stevenson Creek, Bear Creek, and various tributaries thereof; Mammoth Pool, Reddinger Lake, Huntington Lake, Florence Lake, Lake Thomas A. Edison.

Past or Present Activity Name	Affected Area
Vegetation Management/Actions	
Timber harvest/fuel wood cutting (incl. road building related to timber harvest)	Forest wide where suitable
Cedar Valley EA	Bass Lake Ranger District. COUNTY - Madera. LEGAL - T6S, R22E, Sec.7,8,17,18,19,20,20,30/T6S, R21E, Sec. 13,20,24 MDB&M. Center around the community of Cedar Valley, East of State Hwy 41and 3 miles north of Oakhurst..
Grave, Yard, Fuller, Squaw Precommercial Thinning (mechanical) DM	Bass Lake Ranger District, COUNTY - Madera. LEGAL - T5S,R24E,S22,26-28,33-36 and T6S,R24E, S2,3 and T5S,R25E,S29,31,32 and T6S,R25E,S6.
Kinsman I Prescribed Fire	Bass Lake Ranger District, COUNTY - Madera. LEGAL - 8S, R24E, Sec. 19,20,21,24,25. Between Forest Road 4S81,Source Point , Saginaw Creek above Kinsman Flat on the Sierra Nat
Cedar Crest Hazard Abatement Project DM	High Sierra Ranger District, COUNTY - Fresno. LEGAL - T8S, R25E, Section 12, MDBM. Cedar Crest Resort on the north shore of Huntington Lake, California.
Dinkey Mt. II Unit 3 EA	High Sierra Ranger District, COUNTY - Fresno. LEGAL - Sec 4,5,T10S,R26E MDBM. Fresno County, CA.
Kings River Project Environmental Impact Statement EIS	High Sierra Ranger District, COUNTY - Fresno. Fresno
San Joaquin II Grazing Allotment NEPA EA	High Sierra Ranger District, COUNTY - Fresno. LEGAL - South and southeast of San Joaquin River. Sugarloaf, Patterson Bend, Blue Canyon, and Markwood Grazing Allotments.
Fire suppression	High Sierra Ranger District and Bass Lake Ranger District - throughout
Commercial Livestock Grazing	High Sierra Ranger District and Bass Lake Ranger District - throughout
Recreation Management/Actions	
2001 Wilderness Plan: trailhead quotas implemented.	Ansel Adams, John Muir and Dinkey Lakes Wildernesses
2005 AA/JM FEIS elements, including destination quotas, grazing management by grazing zones, trail designations, and stock at one time in the AA/JM Wilderness Designation.	Ansel Adams, John Muir and Dinkey Lakes Wildernesses
Trail maintenance	Forest wide
Wilderness management	Ansel Adams, John Muir, Dinkey Lakes, Kaiser Wildernesses.
Motorized vehicle use (OHVs)	Forest wide where suitable.
Reissue of Various Special Use Permits DM	Forest wide

Past or Present Activity Name	Affected Area
Vegetation Management/Actions	
Recreational activities: fishing, camping, backpacking, Mt. biking, trapping	Forest wide
4X4 Poker Run Special Use Permit Renewal EA	High Sierra Ranger District, COUNTY - Fresno. LEGAL - Available at District office. Fresno County, CA, Jose Basin, BlueCanyon, Bald Mtn.,Swamp Lak
California Department of Fish and Game (CDFG) Fish Stocking	Forest wide
PG&E Woodchuck 70kV Transmission Line Vegetation Management Project DM	High Sierra Ranger District, COUNTY - Fresno. LEGAL - T11S, R27E, Sections 1, 2, 11, 14, 15, 22, 27, 34. Woodchuck Substation at Wishon, south to the Haas Switchyard. Transmission line
Infrastructure Management/Actions	
Bass Lake Hazard Road Maintenance Project EA	Bass Lake Ranger District. COUNTY - Madera. LEGAL - T7S, R22E, Sec 16 . Bass Lake District, Bass Lake Recreation Area.
General Road Maintenance	Forest wide where suitable

Future Foreseeable Activity Name	Affected Area (Timetable: 20 years into the future)
Vegetation Management/Actions	
Commercial Cattle Grazing Management	Forest wide
Recreation Management/Actions	
California Department of Fish and Game (CDFG) Fish Stocking	Forest wide
Campground Reconstruction, and implementation of Recreation Plan by SCE (FERC License Requirement)	High Sierra Ranger District, COUINTY – Frenso and Madera Mammoth Pool, Reddinger Lake, Huntington Lake, Florence Lake, Lake Thomas A. Edison
Special Use Permits and Renewals	Forest wide
Trail maintenance	Forest wide
Wilderness management	Ansel Adams, John Muir, Dinkey Lakes, Kaiser Wildernesses
Phasing in requirement to use certified weed free hay and straw as these products become available.	Forest wide
Infrastructure Management/Actions	
Implementation of Transportation Plan by SCE (FERC License Requirement)	Bass Lake Ranger District and High Sierra Ranger District, COUNTY – Fresno and Madera
Aquatics/Riparian/Hydrology Management/Actions	
Increase instream flows; implement Temperature Monitoring Plan, Riparian Management Plan, Sedment Management Plan, and others by SCE (FERC License Requirement)	Bass Lake Ranger District and High Sierra Ranger District, COUNTY – Fresno and Madera: San Joaquin River, South Fork San Joaquin River, Big Creek, Stevenson Creek, Bear Creek, and various tributaries thereof; Mammoth Pool, Reddinger Lake, Huntington Lake, Florence Lake, Lake Thomas A. Edison.

3.1 Human Environment

3.1.1 Wilderness

Kaiser and Dinkey Lakes Wildernesses

3.1.1.1 Background

The Kaiser Wilderness lies immediately north of Huntington Lake and includes much of the prominent Kaiser Ridge. The wilderness, designated in 1976 (Public Law 94-577), encompasses approximately 22,700 acres of fir forest and lakes clustered on either side of Kaiser Ridge. Elevations range from 6,800 feet on the northern boundary to 10,310 feet at Kaiser Peak. This rugged country receives most of its recreational use, both commercial and non-commercial, on the Kaiser Loop Trail as well as at Nellie Lake and Twin Lakes. The south slopes receive the most intense use, as they border the popular Huntington Lake Recreation Area. There are no private inholdings within the Kaiser Wilderness, though the land immediately outside of the southern boundary contains many recreation residences under special use permit from the Forest Service. Lands within Kaiser Wilderness comprise approximately 3.8% of all lands designated as wilderness on the Sierra National Forest.

In this analysis, the Kaiser Wilderness includes only one analysis unit, the Kaiser AU (KAI).

The Dinkey Lakes Wilderness lies immediately west of the John Muir Wilderness, separated from it by the Dusy-Ershim OHV Route. Elevations range from 8,200 feet near Courtright Reservoir to 10,619 feet at Three Sisters Peak. Most of the area consists of timbered rolling terrain. Sixteen lakes are clustered in the west central portion with large meadows in the north central regions and along Helms Creek. Established by the California Wilderness Act of 1984 (Public Law 98-425), this approximately 30,000-acre wilderness contains no private lands. Lands within the Dinkey Lakes Wilderness comprise approximately 5.0% of all lands designated as wilderness on the Sierra National Forest.

In this analysis, the Dinkey Lakes Wilderness includes four analysis units (AUs): the Coyote AU (COO), the Dinkey Lakes AU (DIL), the Helms AU (HEL) and the Nelson AU (NEL). In this section, the impacts to wilderness and wilderness character are analyzed at the wilderness scale for the Dinkey Lakes Wilderness, not at the AU scale. This is because the stewardship of wilderness character takes place at the wilderness level, not at specific zones within the wilderness. The goal of wilderness stewardship is to maintain and improve wilderness character throughout entire wilderness areas, though specific sites or zones may have greater or lesser impacts due to many factors. Site-specific impacts will be discussed in this analysis, but there will not be an analysis at the level of the analysis unit.

3.1.1.2 Methodology

In order to perform an analysis of the four qualities of wilderness character (see Analysis Elements description below), many different types of information were required related to the physical and social attributes of both the Kaiser and Dinkey Lakes Wildernesses. The majority of the physical information required for the analysis was collected and analyzed by resource specialists and the methodology and analysis of those individual elements is provided in the following sections:

- 3.1.3 Trails
- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

Two additional types of data were collected exclusively for the purposes of analyzing wilderness character: campsite inventory data and wilderness permit data.

Campsite inventories were performed throughout the Kaiser and Dinkey Lakes Wildernesses between 2004 and 2006 in order to assess one attribute of the undeveloped quality of wilderness character in these areas (see description of wilderness character below). Campsite inventory data is used in this analysis as one measure of the amount of development within the two wilderness areas. A relatively greater number of campsites around a given destination (for example, a lake or a meadow) generally indicates that there is a relatively greater level of development around that destination, and therefore a greater impact to the undeveloped quality of wilderness character (see below for definition).

To assess outstanding opportunities for solitude or a primitive and unconfined type of recreation, which is one of the four qualities of wilderness character, wilderness permits for the Kaiser and Dinkey Lakes Wilderness Areas were analyzed. Wilderness permits are required for all overnight visitors to the Kaiser and Dinkey Lakes Wilderness areas, and the information on the permits is compiled annually (see project record for annual data). Wilderness permits provide information on party size, entry point, date of entry, length of stay, and whether the party is commercial or private. The number of permits issued to commercial pack stations, the number of permits issued to private equestrians, and the number of total permits issued was compiled from the annual data. The number of visitors entering the wilderness at specific trailheads provides an indication of the amount of potential crowding around destinations accessed by the trailheads. Crowding at destinations can lead to a degradation of opportunities for solitude. Wilderness permits issued to commercial pack stations do not imply that the commercial pack station held stock overnight in the wilderness for any respective trip. In most cases within the Kaiser and Dinkey Lakes Wildernesses, the pack stations do not hold stock overnight in the wilderness, but rather they drop their clients off at a destination and then return to their headquarters. The permits are required for the clients, regardless of whether or not stock is held overnight.

Analysis Elements

Four qualities of wilderness character were used to analyze the effects of the alternatives on wilderness. These qualities were selected as the most appropriate elements for analysis of effects of the alternatives, based on the Wilderness Act as described below.

The Wilderness Act and Wilderness Character

The Wilderness Act (Public Law 88-577) defines the concept of wilderness and the unique values that wilderness areas should preserve. The Act states that designated wilderness shall be administered "...for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness and so as to provide for the protection of those areas, the preservation of their wilderness character..." (Sec. 2(a)). The Act goes on to state that, "Except as otherwise provided in this Act, each agency administering and area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for other purposes for which it may have been established so as to preserve its wilderness character" (Sec. 4(b)). Forest Service policy, as outlined in the Forest Service Manual, states, "Where there are alternatives amongst management decisions, wilderness values shall dominate over all other considerations except where limited by the Wilderness Act, subsequent legislation, or regulations" (FSM 2320.3.1) and "Where a choice must be made between wilderness values and visitor or any other activity, preserving the wilderness resource is the overriding value. Economy, convenience, commercial value, and comfort are not standards of management or use of wilderness" (FSM 2320.6). Furthermore, the 2001 Wilderness Plan ROD states, "It is our desire to manage these wildernesses in a manner that protects the landscape for the highest qualities of wilderness character consistent with the appropriate levels of public use." This statement, which is found under the "Visitor Use Management" section of the ROD, applies to the Dinkey Lakes Wilderness, but the same strategy is also appropriate for management of the Kaiser Wilderness, which is currently managed only under general direction from the 1991 Sierra National Forest LRMP.

The definition of wilderness character has been an amoebic and evolving concept since the passage of the Wilderness Act. In 2005, researchers at the Federal interagency Aldo Leopold Wilderness Research Institute stated that preservation of wilderness character is the primary responsibility mandated by the Act, but that neither the Act itself, legislative history, nor any subsequent legislation has clearly defined it (Landres et al., 2005). The Wilderness Act does, however, refer to the unique values of Wilderness when it defines Wilderness in Section 2(c):

> A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness if further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent human improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable

its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic or historical value.

From this definition, Landres et al. (2005) selected four qualities that would represent the general concept and ideals of wilderness character, and were mostly exclusive in their definition. These qualities, also serve as the four analysis elements:

- ***Untrammeled***
  - *Definition:* Wilderness is essentially unhindered and free from modern human control or manipulation.
  - In the scope of this analysis, there are no potential actions that would affect the untrammeled quality of wilderness character. Examples of actions that would affect the untrammeled quality of wilderness character, but are outside of the scope of this analysis, include dams, fire suppression and urban development near the boundaries of wilderness areas.
- ***Undeveloped***
  - *Definition:* Wilderness is essentially without permanent human improvements or modern human occupation.
  - In the scope of the proposed alternatives, there are several potential effects that could impact the undeveloped quality of wilderness character. These effects include the establishment of new spot and dunnage sites, the expansion or hardening of existing spot and dunnage sites, the development of new overnight stock camps, the expansion and hardening of existing overnight stock camps, the development of new private visitor camps as a result of private visitor displacement due to the presence of commercial stock and commercial stock clients, and the installation of additional trail structures to ensure that existing system trails are able to withstand the additional impacts associated with commercial stock. Examples of actions that would affect the undeveloped quality of wilderness character, but are outside of the scope of this analysis, include signs, cabins and snow monitoring structures.
- ***Natural***
  - *Definition:* Wilderness ecological systems are substantially free from the effects of modern civilization.
  - In the scope of the proposed alternatives, there are several potential effects that could impact the natural quality of wilderness character. These effects include changes to the naturally occurring environment that are a result of commercial pack stock. These effects are analyzed in the following sections:

- 3.1.3 Trails
- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

Examples of actions that would affect the natural quality of wilderness character, but are outside of the scope of this analysis, include the stocking of non-native fish in wilderness watersheds, and air quality.

- ***Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation***
  - *Definition:* Wilderness provides outstanding opportunities for people to experience solitude or primitive and unconfined type of recreation, including the values of inspiration and physical and mental challenge.
  - In the scope of the proposed alternatives, there are several potential effects that could impact outstanding opportunities for solitude or a primitive and unconfined type of recreation, and therefore impact wilderness character. These effects include the ability to provide the public with opportunities to experience the wilderness on horseback, the addition of visitors in wilderness who were brought in by commercial packstations and impact opportunities for solitude, the displacement of private visitors and resulting change in use patterns/crowding due to commercial stock and commercial stock clients, and the restriction of commercial pack stations to dropping clients in either defined destination zones or designated stock camps. Examples of actions that would affect the outstanding opportunities for solitude or a primitive and unconfined type of recreation quality of wilderness character, but are outside of the scope of this analysis, include the density of occupied campsites permitted within wilderness, trailhead quotas for private users and aircraft overflights.

Any action or impact within or outside of a wilderness that adversely impacts one of these four qualities within a wilderness, and does not balance this adverse impact with a positive impact to one of the other qualities of wilderness character, degrades the character that wilderness. Inversely, any action or impact within or outside of a wilderness that positively impacts one of these four qualities within a wilderness, and does not offset this positive impact with an adverse impact to one of the other qualities of wilderness character, increases the character of that wilderness. Congress recognized that wilderness areas, if not all areas on earth, have been impacted by human actions to a greater or lesser degree, and therefore purposefully did not include words such as "pristine", "pure", "absolute wilderness", or "untouched" in the Wilderness Act. In fact, the definition of wilderness (see above) as defined in the Act gives flexibility for

designating wilderness areas that have clearly been impacted in the past by human activities, but still "generally appear to have been affected primarily by the forces of nature" (Sec. 2(c)). However, once designated, the agencies administering wilderness are directed to preserve, if not improve, wilderness character from the time of designation. Forest Service Manual section 2320.6 states, "The goal of wilderness management is to identify these influences (impacts to wilderness character), define their causes, remedy them, and close the gap between the attainable level of purity and the level that exists on each wilderness." It also states in the same section that the Forest Service should, "Manage wilderness towards attaining the highest level of purity in wilderness within legal constraints."

Actions taken to protect one aspect of wilderness character may have a negative effect on another aspect of wilderness character. For example, constructing a bridge to minimize streamside trampling and erosion, which would protect the natural quality of wilderness character, would impact the undeveloped quality and opportunities for primitive recreation (crossing a stream without a bridge would be more primitive than crossing a stream with a bridge). It is the responsibility of the managing agency to balance sometimes conflicting direction and actions in order to best preserve wilderness character.

Desired Conditions

There is a necessary balance between allowing for, "the use and enjoyment of the American people," within wilderness, and preserving wilderness character. It is this balance that we aim to strike, recognizing that all actions within wilderness must provide for the non-degradation of wilderness character, even though certain individual qualities of wilderness character may be degraded in order that others are improved. In order to assure that we provide for the non-degradation of wilderness character, desired conditions are developed. Desired conditions outline standards that set a minimum threshold for the preservation of wilderness character. If the standards set in the desired conditions are not being met, the threshold for preserving wilderness character is being breached, and the agency has the responsibility to take actions that will meet the standards, therefore bringing the wilderness character of the area back below the minimum threshold for the non-degradation of wilderness character.

Desired conditions are part of the land management plan for a national forest, and are required to undergo the NEPA process, thereby allowing for public input into the desired conditions of wilderness areas. Below are the desired conditions for the Kaiser Wilderness and the Dinkey Lakes Wilderness.

Desired Conditions for the Kaiser Wilderness

No Wilderness Plan has ever been developed for the Kaiser Wilderness. Direction for management of the Kaiser Wilderness is found in the 1991 Sierra National Forest Land and Resources Management Plan. In this plan, there is relatively little direction given for future desired condition, and no specific future desired condition for the Kaiser Wilderness. The future conditions stated for all wilderness areas on the Sierra National Forest are:

- Opportunities for quality wilderness experiences enhanced
- Trail rehabilitation completed by 2010, with emphasis on high-use trails and those that disperse use
- Vegetation returned to a more natural condition, through use of prescribed or natural fire, reducing fuel levels accumulated during the period of fire exclusion

Desired Conditions for the Dinkey Lakes Wilderness
In addition to the applicable desired future conditions in the 1991 Sierra NF LRMP, the 2001 Wilderness Plan outlines an additional set of desired future conditions for the Dinkey Lakes Wilderness. This plan delineated the Dinkey Lakes Wilderness into three recreation categories. The desired future condition for each of these categories is described below:

- 1588 acres of the Dinkey Lakes Wilderness (5%) are designated as recreation category (RC3). This includes the much of the Dinkey Lakes Basin, Rock Lake and Cliff Lake. Attributes of RC3 areas are as follows:
    - Social: In these areas, recreation use levels will be maintained to provide less levels of solitude than the other two categories, yet high opportunities for solitude will exist during non-peak use season. During peak use season, opportunities for experiencing isolation from the sights and sounds and impacts of human activities will be less than other categories. The probability of encountering other visitors on the trail and at campsites is more than other areas.
    - Campsites: Concentration of campsites is moderately high at destinations and along travel corridor. The number of sites accommodates peak use in order to prevent the formation of new sites. Bare mineral soil may exist on some sites and may persist from year to year.
    - Vegetation/Soil Conditions: Moderate soil compaction and loss of vegetation, litter and duff is expected on many visitor created trails, camp areas, and areas used by livestock. Minimal erosion occurs on the disturbed sites and is mitigated to insure long-term impacts do not occur.
    - Riparian Areas: Riparian, lakeshore and stream channel conditions show temporary changes within standards, which could be expected to persist from year to year at some sites. Mitigation measures will be implemented to accommodate moderate levels of human recreation impacts.
    - Resource – General: A mostly unmodified natural environment characterizes this area. Site-specific impacts to vegetation and soil around campsites often persist from year to year and are apparent to most visitors. Resource impacts are not allowed to degrade and management presence will be more necessary to insure continual improvement to the conditions and non-degradation of the natural resources.
- 23,129 acres of the Dinkey Lakes Wilderness (75%) are designated as RC2. The attributes of RC2 areas are as follows:
    - Social: High occasions of solitude while traveling and camping outside of primary trail corridors will be likely. Along primary trail corridors encounters with other visitors will be higher than RC1 areas but far less than RC3 areas. Trail junctions and scenic points will be likely for

camping encounters and campsites ma be within sight or sound of each other. This environment offers a high degree of challenge, self-reliance, and risk.
    - Campsites: Concentration of campsites exists at trail junctions and popular destination points. The number of sites accommodates moderate use with no new sites forming over time. Campsites may occasionally be within sight and sound of others. Bare mineral soil may exist on some sites and may persist from year to year. Outside these areas campsites and impacts associated with camping will be light.
    - Vegetation/Soil Conditions: Moderate soil compaction and loss of vegetation. Minimal erosion occurs on the disturbed sites.
    - Riparian Areas: Riparian, lakeshore and stream channel conditions show a temporary change within standards, which could be expected to persist from year to year at a few sites. These impacts should be mitigated and prevented from occurring if evidence of potential long-term impacts occurs.
    - Resource – General: A highly unmodified natural environment characterizes the area. In a few areas, where moderate levels of use will concentrate, natural conditions may be more affected by the actions of users. These impacts are mitigated with a higher level of management presence. Impacts may persist from year to year and may be apparent to some visitors. Most visitors will not discern impacts.
- 6151 acres of the Dinkey Lakes Wilderness (20%) are designated as RC1. The desired condition of RC1 areas is closest to absolute wilderness. In the Dinkey Lakes Wilderness, the RC1 zone encompasses most of the northwest portion of the wilderness, an area with no prominent lakes, streams, trails, or named geographic features. The attributes of RC1 areas are as follows:
    - Social: These areas provide for the highest opportunities for solitude and are predominantly free from evidence of human activities. Encounter with other visitors while traveling or camping are very infrequent. This environment offers the highest degree of challenge, self-reliance and risk.
    - Campsites: Campsites are at low-density levels and show minor impacts that will rarely persist from year to year.
    - Vegetation/Soil Conditions: There is very little vegetation loss or alteration of duff and litter layer by human use.
    - Riparian Areas: Riparian, lakeshore and stream channel conditions show no measurable degradation due to human uses.
    - Resource – General: An unmodified natural environment characterizes the area. Ecological and natural processes are minimally affected by the actions of users. Environmental impacts are low and restricted to minor losses of vegetation where camping occurs and along travel routes. Most impacts recover on an annual basis and are apparent to few visitors.

Management direction is outlined within the 1991 LRMP and the 2001 Wilderness Plan for how to accomplish the desired future conditions for these two wilderness areas, and therefore protect wilderness character (see project file for management direction in 2001

Wilderness Plan). This management strategy allows for a balance between providing for use and enjoyment while protecting wilderness character.

3.1.1.3 Overview – Common to All

In the Affected Environment and Environmental Consequences portions of this analysis, current conditions (affected environment) and the impacts of each alternative to wilderness and wilderness character (environmental consequences) are analyzed at the wilderness scale for the Kaiser and Dinkey Lakes Wildernesses, not at the AU scale. This is because the stewardship of wilderness character takes place at the wilderness level, not at specific zones within the wilderness. The goal of wilderness stewardship is to maintain and improve wilderness character throughout entire wilderness areas, though specific sites or zones may have greater or lesser impacts due to many factors. Site-specific impacts will be discussed in this analysis, but not at the level of the analysis unit. For the Kaiser Wilderness, this point is moot because the entire wilderness is one analysis unit. For the Dinkey Lakes Wilderness, all four analysis units (COO, DIL, HEL and NEL) are considered as one, under the heading of "Dinkey Lakes Wilderness." The size of the Dinkey Lakes Wilderness (30,000 acres) is similar to the size of the Geographic Units used to analyze wilderness character in the 2005 Pack Stock Management EIS.

Affected Environment

Current Condition of the Kaiser Wilderness

Current Condition of the Untrammeled Quality of Wilderness Character
Commercial packstations do not impact the untrammeled quality of wilderness character, because the impacts to this quality are generally the result of major structural installations (such as dams) or ecosystem-wide management actions (such as fire suppression). There are no actions of this type related to commercial pack stations in any alternative.

Current Condition of the Undeveloped Quality of Wilderness Character
Developments within the Kaiser Wilderness that may be impacted by the alternatives in this analysis are limited to campsites and trail structures. Both of these developments are related to recreational use within the wilderness, and some are related to commercial stock use.

In the Kaiser Wilderness, 167 campsites were inventoried by wilderness rangers between 2004 and 2006. Most camping occurs at either Nellie Lake on the south slope of Kaiser Ridge, or at the Twin Lakes/George Lake complex, just over Potter Pass on the north side of Kaiser Ridge. The popularity of these two areas has resulted in a concentration of campsites near these lakes, which adversely affects the undeveloped quality of wilderness character. The northwest corner of the wilderness receives the lightest use, and generally shows little adverse impacts to the undeveloped quality. Of the 167 inventoried campsites, it is likely that only a dozen are used as spot and dunnage sites by commercial pack stations. These are located at Nellie Lake, the Twin Lakes/George Lake area, Bill Lake, Jewel Lake and Walling Lake. Only two campsites, one at Nellie Lake and one at Upper Twin Lake, were used as an overnight stock camp between 2001 and 2005, as reported in commercial pack station tally sheets. There historically have been no

designated campsites for commercial pack stations in the Kaiser Wildenress. Given that less than 10% of all inventoried campsites within the Kaiser Wilderness are used by commercial packstations, and that these campsites are also used by private visitors, the adverse impact of commercial pack stations to the undeveloped quality of the wilderness character is minimal, and is limited only to any expansion in the size of individual sites that is related to commercial pack station clients and the commercial stock.

Many of the trails within the Kaiser Wilderness, which are used by both commercial stock and non-commercial visitors, exhibit the characteristics typical of a trail class 3, which generally have a variety of structures designed to retain soil, divert water and prevent erosion caused by visitor traffic. The structures include water bars, drain dips, rip rap staircases, spinner walls, rock walls, rock steps and check dams. These structures adversely impact the undeveloped quality of wilderness character because they are permanent human improvements within wilderness. However, without these structures it is very likely that both the undeveloped and natural qualities of wilderness character would be adversely impacted to a greater degree, as both commercial and non-commercial visitors would tend to blaze their own trails through the wilderness, and a proliferation of trails and erosion gullies would likely occur. There has been no inventory of the number of trail structures within the Kaiser Wilderness. Please see the Trail section (3.1.3) for an analysis of trails within the Kaiser Wilderness.

Current Condition of the Natural Quality of Wilderness Character
Elements of the natural quality of wilderness character that are within the scope of this analysis are defined and assessed in the following sections:

- 3.1.3 Trails
- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

Please refer to the "Affected Environment" portion of each section to view the current condition of the elements of the natural quality of wilderness character.

Current Condition of the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality of Wilderness Character
Outstanding opportunities for solitude or a primitive and unconfined type of recreation within the Kaiser Wilderness may be impacted by the effects of the alternatives in this analysis. The effects of the alternatives are expected to have potential impacts to outstanding opportunities for solitude or a primitive and unconfined type of recreation by changing the following characteristics of visitor use:

1. The ability to provide the public with opportunities to experience the Kaiser Wilderness on horseback. This change could affect opportunities for a primitive type of recreation.

2. An overall change in the number of visitors to the Kaiser Wilderness due to a change in the number of visitors brought into the wilderness by commercial pack stations. This change could affect opportunities for solitude.
3. The displacement of private visitors and resulting change in use patterns/crowding due to commercial stock and commercial stock clients. This change could affect opportunities for solitude.
4. The restriction of commercial pack stations to drop clients within defined destination zones and/or designated stock camps. This change could affect opportunities for an unconfined type of recreation.

The effects of these potential changes that would occur under each alternative are analyzed in the "Environmental Consequences" portion of this section. The current condition of outstanding opportunities for solitude or a primitive and unconfined type of recreation is described below.

Currently, commercial pack stations have a positive impact on opportunities for primitive recreation in the Kaiser Wilderness because they provide the only opportunity for many members of the public to experience the wilderness on horseback.

As stated above, most of the recreational use in the Kaiser Wilderness, both commercial and non-commercial, occurs primarily on the Kaiser Loop Trail as well as at Nellie Lake and Twin Lakes. The south slopes receive the most intense use and camping is most concentrated at Nellie Lake and the Twin Lakes/George Lake complex. These heavily used trails and camping areas see the most adverse impact to the outstanding opportunities for solitude or a primitive and unconfined type of recreation quality of wilderness character (herein referred to as the solitude/unconfined quality), due to the higher concentration of people in these areas as opposed to others areas within the wilderness.

Visitor use into the Kaiser Wilderness averages 1200 overnight visitors per year. Of the 1200 overnight visitors, approximately 50, or 4%, are clients of commercial pack stations and approximately 20, or 2%, are private equestrians. The timing of this use is concentrated into a 10-week period with most use occurring from the end of June through the beginning of September. Therefore, any impact to the solitude/unconfined quality is temporally limited to two to three months during the year. Outside of these months, even the Kaiser Loop Trail, Nellie Lake and the Twin Lakes/George Lake complex do not show adverse impacts to this quality.

Commercial pack station clients average only 3.4% of the total overnight use based on the number of permits issued for overnight use between 2001 and 2005. In general the entry points are different than the general public, so impacts to solitude are not present near the trailheads. Due to the small size and limited number of destinations in the Kaiser Wilderness, most visitors to the Kaiser Wilderness head to the larger lakes, causing crowding and a higher chance for adverse impacts to the opportunities for solitude quality. However, since only 3.4% of all overnight use can be attributed to commercial pack stations, they currently have a minimal adverse impact to opportunities

for solitude, particularly when compared to the impact of private users who account for 96.6% of all overnight use.

Table 3.3: Summary of Wilderness Permits Issued in the Kaiser Wilderness

	2001	2002	2003	2004	2005
Public	108	325	314	290	233
Packer	13	14	7	5	4
Packer % of Total	12%	4 %	2%	2%	1%

Table 3.4: Kaiser Wilderness Trailheads and Quotas
This table shows trailhead use by the public and commercial pack stations, by # of permits issued between 2001 and 2005

Trailhead	Code	Daily Quota	Total # Permits	# Comm. Packer Permits	% of Permits Issued to Comm. Packers
Sample	K1	36	354	0	0.0%
Potter Pass	K2	36	555	1	0.2%
Potter Cutoff	K3	12	52	0	0.0%
Deer Creek	K4	12	116	41	35.3%
Billy Creek	K5	30	167	1	0.6%
Coarsegrass Meadow	K6	12	0	0	0.0%
Hidden	K7	12	5	0	0.0%
Pryor	K8	12	28	0	0.0%
Total	*N/A*	*N/A*	*1277*	*43*	*3.4%*

In addition to overnight use commercial pack stations run a variety of day rides out of their headquarters near Huntington Lake. Some of the routes used briefly enter the Kaiser Wilderness. Required pack station reports from 2001 through 2005 indicate an average of 1,655 clients per year pass through a small portion of the Kaiser Wilderness on day rides. There are no reliable estimates of private day use, as permits are not required and a statistically defensible day use monitoring system is not in place for the Kaiser Wilderness.

There is no available statistically valid data on the number of visitors using specific overnight destinations in the Kaiser Wilderness. Since multiple trailheads are used to access destinations within the Kaiser Wilderness, trailhead and destination use cannot be correlated. However, the number of campsites clustered in specific areas of the wilderness provides strong corollary evidence to the destinations most often used by visitors. Campsite inventory data collected between 2004 and 2006 indicates that 87 of the167 campsites inventoried in the Kaiser Wilderness (or 52% of inventoried campsites)

are clustered around the Twin Lakes/George Lake area. The next greatest concentration of campsites occurred at Nellie Lake (29 campsites, or 17%), followed by the College Lake/Jewel Lake/Campfire Lake area (16 campsites, or 10%). Commercial pack stations are currently permitted to drop clients in the Twin Lakes/George Lake area, and do so. The commercial pack stations also have reported dropping clients at Nellie Lake, Walling Lake, Bill Lake and Jewel Lake. The only overnight stock camp reported to have been used by D&F between 2001 and 2005 is at Nellie Lake. This data indicates that the greatest likelihood of adverse impacts to solitude due to visitor displacement currently occurs in the Twin Lakes/George Lake area, as that is where the majority of the use occurs. The data does not indicate, however, that commercial pack stations have any greater adverse impact to opportunities for solitude due to visitor displacement than do other private users. Because private users account for 96% of total use, the likelihood of being displaced by a private user is much greater than the likelihood of being displaced by a commercial pack station client, and therefore private users have a much greater adverse impact to opportunities for solitude due to visitor displacement than do commercial pack stations.

Currently, commercial pack stations are permitted to drop clients or have a stock camp anywhere within the Kaiser Wilderness. Therefore, there is currently no adverse impact on commercial pack station clients to have opportunities for unconfined recreation.

Summary of Current Condition of Wilderness Character
Overall, commercial pack stations currently have a positive impact to wilderness character, primarily because of the balance between their positive impact to opportunities for primitive recreation and their minimal adverse impact to solitude in the solitude/unconfined quality of wilderness character. Since both opportunities for solitude and opportunities for primitive and unconfined recreation are part of the same quality of wilderness character, these sometimes conflicting elements must be combined to assess the overall impact to this single quality of wilderness character. Under the current conditions of in the Kaiser Wilderness, it is assessed that the positive impacts to opportunities for primitive recreation outweigh the minimal adverse impact to solitude, and therefore the overall effect of the solitude/unconfined quality is slightly positive.

Current Condition compared to Desired Condition
As it relates to commercial pack stock, the current conditions within the Kaiser Wilderness meet the direction provided for the desired condition of the Kaiser Wilderness.

Commercial pack stations currently provide one form of opportunity for quality wilderness experiences, without diminishing the quality of wilderness character or the opportunity for quality wilderness experiences of other visitors, as assessed above in the discussion of "Current Condition of Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation".

Commercial pack stations currently have no impact on the completion of trail rehabilitation by 2010. While this desired future condition may not be met by 2010, the

overriding reason for any future failure of this desired condition within the Kaiser Wilderness is the lack of financial and personnel resources available to the Sierra National Forest to accomplish this task. While commercial pack stations currently have some impact on trail stability (see Trails section 3.1.3 for analysis), the current presence of commercial pack stock in the Kaiser Wilderness is not the reason that trails in need of rehabilitation have not been rehabilitated.

Commercial pack stations currently have no impact on returning vegetation to a more natural condition through the use of prescribed or natural fire.

Summary of Current Condition of the Kaiser Wilderness
The current commercial pack station operations within the Kaiser Wilderness are not adversely affecting wilderness character (see above), and are not breaching the minimum threshold required to maintain wilderness character, as defined by the desired conditions for the Kaiser Wilderness (see above).

Current Condition of the Dinkey Lakes Wilderness

Current Condition of the Untrammeled Quality of Wilderness Character
Commercial packstations do not impact the untrammeled quality of wilderness character, because the impacts to this quality are generally the result of major structural installations (such as dams) or ecosystem-wide management actions (such as fire suppression). There are no actions of this type related to commercial pack stations in any alternative.

Current Condition of the Undeveloped Quality of Wilderness Character
Like the Kaiser Wilderness, developments within the Dinkey Lakes Wilderness that may be impacted by the alternatives in this analysis are limited to campsites and trail structures. Both of these developments are related to recreational use within the wilderness, and some are related to commercial stock use.

In the Dinkey Lakes Wilderness, 189 campsites were inventoried by wilderness rangers between 2004 and 2006. Areas not inventoried include Rock Meadow, Nelson Lake, Little Lake and Helms Meadow. The majority of the campsites (140 campsites, or 74%) occur within the Dinkey Lakes Basin. The popularity of the six major lakes within this basin (First Dinkey Lake, Second Dinkey Lake, Swede Lake, South Lake, Mystery Lake and Island Lake) has resulted in a concentration of campsites near these lakes, which adversely affects the undeveloped quality of wilderness character within this basin. Of the 189 inventoried campsites, it is likely that only 5 or 6 (or 3% of all inventoried campsites) are used as spot and dunnage sites by commercial pack stations (one per lake where clients were dropped). These are located at South Lake, Island Lake, Second Dinkey Lake, Rock Lake and Cliff Lake. In addition, pack stations report dropping clients at Rock Meadow, near Perkins Camp, and at Nelson Lake. These areas have not been inventoried, but anecdotal reports indicate few campsites in these areas, especially when compared to the Dinkey Lakes Basin. Three campsites, one at Rock Meadow, one near Perkins Camp, and one at Cliff Lake, were reported as overnight stock camps by commercial pack stations between 2001 and 2005. Given that less than 5% of all inventoried campsites within the Dinkey Lakes Wilderness are used by commercial pack

stations, and that these campsites are also used by private visitors, the adverse impact of commercial pack stations to the undeveloped quality of the wilderness character is minimal, and is limited only to any expansion in the size of individual sites that is related to commercial pack station clients and the commercial stock.

This document proposes to designate a new trail system within the Dinkey Lakes Wilderness. Currently, there is a designated trail system within the Dinkey Lakes Wilderness that adversely impacts the undeveloped quality of wilderness character. Trails of any sort adversely impact the undeveloped quality of wilderness character because they are permanent human improvements within wilderness. However, the primary purpose of a trail system within wilderness is to protect from even greater damage to both the undeveloped and natural qualities of wilderness character. Multiple trailing, erosion, incision, damage to riparian areas, and a proliferation of trails would be the expected result of the lack of a developed trail system. Visitors will enter the wilderness areas whether a trail system is present of not, and the development of a trail system ultimately protects wilderness character to a greater degree than the lack of a designated trail system would protect wilderness character. The current trail system within the Dinkey Lakes Wilderness includes 40.1 miles of system trails. There are several abandoned system trails in the wilderness (Tocher Lake Trail, Frazier Trail, Perkins Cutoff Trail, and Black Peak Trail) that are present on the ground and still receive use from visitors, but are no longer part of the official trail system. In addition, there are many use trails, particularly within the Dinkey Lakes Basin where there are use trails between campsites and around nearly every lake in the basin.

Terrain within the Dinkey Lakes Wilderness is more moderate than that in the Kaiser Wilderness, and therefore there is generally less potential for soil loss and erosion as a result of visitor traffic. Therefore, fewer trail structures are needed to drain water and present soil loss. The structures include water bars, drain dips, rip rap staircases, spinner walls, rock walls, rock steps and check dams. They adversely impact the undeveloped quality of wilderness character because they are permanent human improvements within wilderness. Similar to the Kaiser Wilderness, without these structures it is very likely that both the undeveloped and natural qualities of wilderness character would be adversely impact to a greater degree, as both commercial and non-commercial visitors would tend to blaze their own trails through the wilderness, and a proliferation of trails and erosion gullies would likely occur. There has been no inventory of the number of trail structures within the Dinkey Lakes Wilderness. Please see the Trail section (3.1.3) for an analysis of trails within the Dinkey Lakes Wilderness.

Current Condition of the Natural Quality of Wilderness Character
Elements of the natural quality of wilderness character that are within the scope of this analysis are defined and assessed in the following sections:

- 3.1.3 Trails
- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

Please refer to the "Affected Environment" portion of each section to view the current condition of the elements of the natural quality of wilderness character. Currently, the Black Peak Trail, Frazier Trail, Perkins Cutoff Trail and Tocher Lake Trail are not part of the Dinkey Lakes Wilderness Trail system, and therefore any resource damage occurring to these trails would not be able to be addressed using trail maintenance funds. The only one of these trails that is currently unstable is a ½ mile section of the Black Peak Trail south of Rock Meadow, where the trail is gullied and actively eroding. This erosion does not reach surface water, but soil loss is occurring. This erosion cannot be attributed to any particular user group, including commercial pack stations. The reason for the erosion is a lack of maintenance on the trail due to the fact that it is not part of the trail system.

Current Condition of the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality of Wilderness Character
Outstanding opportunities for solitude or a primitive and unconfined type of recreation within the Dinkey Lakes Wilderness may be impacted by the effects of the alternatives in this analysis. The effects of the alternatives are expected to have potential impacts to opportunities for solitude or a primitive and unconfined type of recreation by changing the following characteristics of visitor use:

1. The ability to provide the public with opportunities to experience the Dinkey Lakes Wilderness on horseback. This change could affect opportunities for a primitive type of recreation.
2. An overall change in the number of visitors to the Dinkey Lakes Wilderness due to a change in the number of visitors brought into the wilderness by commercial pack stations. This change could affect opportunities for solitude.
3. The displacement of private visitors and resulting change in use patterns/crowding due to commercial stock and commercial stock clients. This change could affect opportunities for solitude.
4. The restriction of commercial pack stations to drop clients within defined destination zones and/or designated stock camps. This change could affect opportunities for an unconfined type of recreation.

The effects of these potential changes that would occur under each alternative are analyzed in the "Environmental Consequences" portion of this section. The current condition of opportunities for solitude or a primitive and unconfined type of recreation is described below.

Currently, commercial pack stations have a positive impact on opportunities for primitive recreation in the Dinkey Lakes Wilderness because they provide the only opportunity for many members of the public to experience the wilderness on horseback.

The majority of the use in the Dinkey Lakes Wilderness occurs along the Dinkey Lakes Trail and the Mystery Lake Trail in the Dinkey Lakes Basin. These two trails concentrate use around six major lakes in the wilderness. The majority of visitors exclusively use this basin, as indicated by both the number of permits issued for the Willow Meadow Trailhead (71% of all permits issued for the Dinkey Lakes Wilderness) and by the number of campsites surrounding these six lakes (74% of all inventoried campsites). These visitors are likely to see the most adverse impact to the outstanding opportunities for solitude or a primitive and unconfined type of recreation quality of wilderness character (herein referred to as the solitude/unconfined quality), due to the higher concentration of people in this basin as opposed to others areas within the wilderness.

Visitor use into this wilderness area averages 1900 overnight visitors per year. Of the 1900 overnight visitors, approximately 45, or 2%, are clients of commercial pack stations, and approximately 19, or 1%, are private equestrians. The timing of this use is concentrated into a 10 week period with most use occurring from the end of June through the beginning of September. Therefore, any impact to the solitude/unconfined quality is temporally limited to two to three months during the year. Outside of these months, this quality remains high throughout the all areas of this wilderness.

There is no permit required for day use so consequently use figures do not exist. While no statistically defensible estimates are available for the number of private visitors that enter the Dinkey Lakes Wilderness for day trips, anecdotal evidence suggests that the majority of all day use occurs within the Dinkey Lakes Basin, similar to overnight use. Day users also enter the wilderness from the Cliff Trailhead due to its proximity to Courtright Reservoir and from Coyote Trailhead due to its proximity to the Red Mountain OHV Route.

Commercial pack station use averages only 1.9% of overnight use based on the number of total permits issued. Most commercial pack station use occurs from the Badger Flat Trailhead (46% of all commercial pack station overnight use, 22% of all overnight use at this trailhead, 0.9% of all overnight use) and Cliff Lake Trailhead (41% of commercial pack station overnight use, 3% of all overnight use at this trailhead, 0.8% of all overnight use), while most of the public overnight use enters at the Willow Meadow Trailhead (71% of all overnight use). In accordance with the 2001 Wilderness Plan, commercial pack station use at the Willow Meadow Trailhead must have case-by-case approval from the Authorizing Officer. Based on this data and given that each individual trailhead provides access to different areas of the wilderness (see wilderness maps in project record), there currently are few impacts from commercial pack stations to opportunities for solitude in the Dinkey Lakes Wilderness. The greatest adverse impact from commercial pack stations to opportunities for solitude due to the addition of visitors occurs at destinations accessed from the Badger Flat Trailhead (primarily Rock Meadow and Perkins Camp), where commercial pack station permits account for 22% of the total number of permits issued between 2001 and 2005 (21 out of 94 permits). However, this area generally retains high opportunities for solitude, especially when compared to destinations accessed from the Willow Meadow Trailhead and the Cliff Trailhead, where the number of total permits issued (1699 and 544 total permits, respectively) far exceeds

number of permits issued for the Badger Flat Trailhead. Therefore, it is difficult to conclude that commercial pack stations are having an adverse impact due to the addition of visitors to opportunities for solitude over the wilderness as a whole (1.9% of all permits are issued to commercial pack stations), even though 22% of all permits issued for the Badger Flat Trailhead are commercial pack station permits.

Table 3.5: Summary of Permits Issued in the Dinkey Lakes Wilderness

	2001	2002	2003	2004	2005
Public	282	636	557	505	404
Packer	18	5	8	9	6
Packer % of Total	6%	1%	1%	2%	1%

Table 3.6: Dinkey Lakes Wilderness Trailheads and Quotas
This table shows trailhead use by the public and commercial pack stations, by # of permits issued between 2001 and 2005

Trailhead	Code	Daily Quota	Total # Permits	# Comm. Packer Permits	% of Permits Issued to Comm. Packers
Badger	D1	10	94	21	22.3%
Helms Meadow	D2	10	19	1	5.3%
Cliff	D3	20	544	19	3.5%
Nelson	D4	10	7	0	0.0%
Willow Meadow	D5	30	1699	5	0.3%
Coyote	D6	10	21	0	0.0%
Total	*N/A*	*N/A*	*2384*	*46*	*1.9%*

There is no available statistically defensible data on the number of visitors using specific overnight destinations in the Dinkey Lakes Wilderness, but because use at destinations within the Dinkey Lakes Wilderness can be correlated to number of permits issued at trailheads (by comparing the number of campsites at destinations accessed by specific trailheads to the number of permits issued for those trailheads), we can analyze the adverse impacts to opportunities for solitude due to visitor displacement by looking at the number of permits issued for individual trailheads. Because the use at individual trailheads can be in indicator of adverse impacts to opportunities for solitude due to visitor displacement, we can draw the same conclusions as were drawn for adverse impacts to opportunities for solitude due to the addition of visitors in the Dinkey Lakes Wilderness. As concluded above, commercial pack stations currently have minimal adverse impacts to opportunities for solitude due to the addition of visitors. Therefore, commercial pack stations also have minimal adverse impact to opportunities for solitude due to visitor displacement in the Dinkey Lakes Wilderness. If any conclusion can be

drawn related to visitor displacement, it is that private users have a much greater adverse impact to opportunities for solitude due to visitor displacement than do commercial pack stations, because private users account for 98.1% of total use, and therefore the likelihood of being displaced by a private user is much greater.

Currently, commercial pack stations are permitted to drop clients or have a stock camp anywhere within the Dinkey Lakes Wilderness, and therefore these clients have an opportunity for an unconfined type of recreation. There is one trail, the Island Lake Trail, which is restricted from use by commercial pack stations at present. This trail is 0.6 miles long, and accounts for 1% of the current trail system. Because this trail is closed to use by commercial pack stations, there is a minimal adverse impact to opportunities for unconfined recreation to commercial pack station clients because they cannot ride on this trail.

Summary of Current Condition of Wilderness Character
Overall, commercial pack stations currently have a positive impact to the wilderness character, primarily because of the balance between their positive impact to opportunities for primitive recreation and their minimal adverse impact to solitude in the solitude/unconfined quality of wilderness character. Since both opportunities for solitude and opportunities for primitive and unconfined recreation are part of the same quality of wilderness character, these sometimes conflicting elements must be combined to assess the overall impact to this single quality of wilderness character. Under the current conditions of in the Dinkey Lakes Wilderness, it is assessed that the positive impacts to opportunities for primitive recreation outweigh the minimal adverse impact to solitude, and therefore the overall effect of the solitude/unconfined quality is slightly positive. This conclusion is the same as the conclusion for the Kaiser Wilderness, which is appropriate because of similar percentages of commercial packstation use overnight use relative to overall overnight use.

Current Condition compared to Desired Condition
As it relates to commercial pack stock, there are no activities related to commercial pack stations that are outside of the standards set in the desired conditions for the Dinkey Lakes Wilderness.

Related to the desired conditions outlined in the 1991 Sierra NF LRMP, commercial pack stations currently provide one form of opportunity for quality wilderness experiences, without diminishing the quality of wilderness character or the opportunity for quality wilderness experiences of other visitors, as assessed above in the discussion of "Current Condition of Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation".

Additionally, commercial pack stations currently have no impact on the completion of trail rehabilitation by 2010. While this desired future condition may not be met by 2010, the overriding reason for any future failure of this desired condition within the Dinkey Lakes Wilderness is the lack of financial and personnel resources available to the Sierra National Forest to accomplish this task. While commercial pack stations currently have

some impact on trail stability (see Trails section 3.1.3 for analysis), the current presence of commercial pack stock in the Dinkey Lakes Wilderness is not the reason for that trails in need of rehabilitation have not been rehabilitated.

Commercial pack stations also currently have no impact on returning vegetation to a more natural condition through the use of prescribed or natural fire.

Related to the 2001 Wilderness Plan, commercial pack stations currently do not impact desired conditions in any way that would put the current conditions outside of the scope of the desired conditions.

In the both the RC3 and RC2 areas, the affect of commercial pack stations on social conditions place their impact well within the constraints outlined by the desired conditions, for reasons described above in the "Current Condition of Opportunities for Solitude or a Primitive and Unconfined Type of Recreation" section. With only 8 out of 189 inventoried campsites being attributable to commercial pack stations, the effect of commercial pack stations on the current condition of campsites in both RC3 and RC2 areas is also well within the constraints outlined by the desired campsite conditions in the 2001 Wilderness Plan. Finally, the effect of commercial pack stations on the desired conditions for vegetation/soil conditions, riparian areas and general resources is within the desired conditions. For an analysis of why commercial pack stations are considered to currently be within these constraints, please refer to the affected environment portions of the following sections:

- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

Commercial pack stations currently do not impact the desired conditions of the RC1 zone in the Dinkey Lakes Wilderness because no portion of their operations occurs within the RC1 zone.

Summary of Current Condition of the Dinkey Lakes Wilderness
The current commercial pack station operations within the Dinkey Lakes Wilderness are not adversely affecting wilderness character (see above), and are not breaching the minimum threshold required to maintain wilderness character, as defined by the desired conditions for the Dinkey Lakes Wilderness (see above).

Environmental Consequences

When Congress passed the Wilderness Act in 1964, it recognized the wilderness areas that were set aside in the Act, as well as future acts, were not "pure" wilderness. This recognition is codified in Section 2(c) when the Act defines wilderness as:

> A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to

> mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent human improvements of human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with man's imprint substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres or sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic or historical value.

By using phrases such as "generally appears...", and "substantially unnoticeable," Congress recognized that they were setting aside lands that had been used and showed the imprint of humans, but nonetheless were lands that, "retained their primeval character and influence,..." The Eastern Wilderness Areas Act of 1975 further drove this point home by designating 15 wilderness areas and 17 wilderness study areas in the eastern United States, many of which had been formerly logged or otherwise heavily used by humans. Congress has recognized that wilderness areas are not "pure"; they can be substantially restored or on their way to recovery and still meet the definition of wilderness under the Wilderness Act. The Forest Service has also recognized this fact by stating in its regulations (FSM 2320.6) that, "The Wilderness Act defines wilderness at some point below absolute wilderness." On National Forest System lands, once a wilderness is designated the agency has a responsibility to preserve, if not improve, the current state of wilderness character. Forest Service Manual section 2320.6 states, "The goal of wilderness management is to identify these influences (impacts to wilderness character), define their causes, remedy them, and close the gap between the attainable level of purity and the level that exists on each wilderness." It also states in the same section that the Forest Service should, "Manage wilderness towards attaining the highest level of purity in wilderness within legal constraints."

Therefore, when evaluating the environmental consequences of these alternatives, this analysis compares the effects of each alternative to the current condition of wilderness character, not to "pure" wilderness character. This comparison allows us to maintain a non-degradation policy toward wilderness character, and allows us to determine if we are in fact, "closing the gap between the attainable level of purity and the level that [currently] exists on each wilderness." If we were to analyze the effects of any action (including those not within the scope of this analysis) in wilderness as compared to "pure" wilderness, then any action would be a violation of agency regulations because every action that would allow for any kind of human impact (including any kind of visitor use) would have an adverse impact to wilderness character and would violate the Forest Service's non-degradation policy. Furthermore, this comparison would not align with the intent of Congress, which clearly intended to allow for the "use and enjoyment" (the Wilderness Act, Public Law 94-577) of wilderness areas, which inherently means that some humans impacts are acceptable, so long as the level of the impacts are below a certain threshold (defined by the Forest Service as "Desired Conditions") and wilderness character is not being degraded below current conditions.

3.1.1.4 Wilderness Level Evaluation

KAISER WILDERNESS

Alternative 1

Direct and Indirect Effects

Untrammeled Quality of Wilderness Character

There are no effects to the untrammeled quality of wilderness character. Currently, the commercial pack stations have no effect on this quality, and there would be no effect if the commercial pack stations no longer operated in the wilderness. At stated above, impacts to this quality are generally the result of major structural installations (such as dams) or ecosystem-wide management actions (such as fire suppression). Since there are currently no actions of this type, and the elimination of commercial pack stations would not require any actions of this type, there is no effect.

Undeveloped Quality of Wilderness Character

There will be few if any effects to the undeveloped quality of wilderness character. As stated in the "Affected Environment", of the 167 campsites inventoried within the Kaiser Wilderness, commercial pack stations use approximately one dozen spot and dunnage sites and only one overnight camp within the Kaiser Wilderness. All of these sites used by the commercial pack stations are almost certainly used by private visitors as well, meaning that they would persist even without commercial pack station operations. The only minimal positive impact to the undeveloped quality would be a slight reduction in the size of the sites currently used by commercial pack stations. At spot and dunnage sites near Nellie Lake, the Twin Lakes/George Lake area, Bill Lake, Walling Lake and Jewel Lake, areas where stock are held for loading and unloading would naturalize over time. At the sole overnight camp at Nellie Lake, the areas where stock are held for loading and unloading and the overnight holding area for stock would naturalize over time. In total, approximately one dozen of the 167 campsites would see this minimal positive impact. These minimal positive impacts to the undeveloped quality would not occur if the sites received continued use from private equestrians.

Trails within the Kaiser Wilderness would see some increased stability over time with the removal of commercial pack stations from the wilderness, but it would be unlikely that there would be a reduced need for trail structures, which adversely impact the undeveloped quality. Because the trails in the Kaiser Wilderness are generally steep and private stock will continue to use these trails, there will always be a need for structures to prevent soil loss and erosion, as well as to divert water from the trails. The removal of commercial stock may reduce the amount of soil potentially lost from trails, but it would not reduce the need for the structures. Therefore, there would be no effect to the undeveloped quality as it relates to trail structures.

Overall, the undeveloped quality of wilderness character would see a minimal positive impact when compared to the current conditions due to the decrease in the size of the 12 to 13 campsites currently impacted by commercial stock. For a discussion of the impacts of commercial stock to the current condition of the undeveloped quality of wilderness character, please refer to the "Affected Environment".

Natural Quality of Wilderness Character
There would be a minimal positive impact to the natural quality of wilderness character under this alternative. A summary of the effects to the natural quality is presented here, but for a detailed description of individual aspects of the physical and biological environment; please refer to the following sections:

- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

The primary positive impact to the natural quality, when compared to current condition, would be a decrease in fecal coliform related to commercial stock manure (see Watershed section 3.2.1). Another change from the current condition would be a minimal positive impact to the Walling Lake use trail (KAI02), which would see less stock traffic and therefore less loosening of soil due to stock. This would lead to less loss of soil from the trail tread, although the trail would require repairs and stabilization in order to prevent all soil loss. Commercial pack stations did not report any grazing of NE Nellie Lake Meadow or Nellie Lake Meadow between 2003 and 2005, and therefore there would be no change to grazing resources. There would be no change to aquatic species. There would be slightly less disturbance to wildlife in the area from commercial pack stock, but currently the only effects are related to wildlife leaving the area temporarily while commercial stock are present, and returning after the commercial stock depart. There would be no effect to botanical resources. There would be a slight increase to water quality near areas used by commercial pack stations (campsites, spot and dunnage sites and trails) because of a decreased amount of fecal coliform from stock manure present within the wilderness.

Overall, there would be a minimal positive impact to the natural quality, related primarily to slightly less soil loss on use trail KAI02.

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality of Wilderness Character
There would be an adverse impact to outstanding opportunities for solitude or a primitive and unconfined type of recreation.

The removal of commercial pack stations from the Kaiser Wilderness would have an adverse impact on opportunities for primitive recreation. For many visitors who want to experience the Kaiser Wilderness on horseback, the services offered by D&F are the only opportunities that they have to gain this primitive recreation experience. Between 2001 and 2005, only 28 overnight permits were issued to private equestrians for the Kaiser Wilderness, compared to 43 permits issued to D&F. Therefore, 61% of all stock use in the Kaiser Wilderness, based on number of permits issued, can be attributed to commercial pack stations. Therefore, the removal of the commercial pack stations from the Kaiser Wilderness would decrease the opportunities for primitive recreation for approximately 60% of all people who entered the Kaiser Wilderness on stock. These

opportunities would be limited only to those who could afford to own private stock, or who were invited on a trip by private stock owners.

There would be a minimal positive impact to opportunities for solitude, due to both slightly fewer visitors to the area and slightly less displacement of private visitors from campsites due to commercial pack station clients. This impact would be expected to be minimal, however, as commercial stock use only accounts for 3.4% of total overnight use within the Kaiser Wilderness. The slight increase in opportunities for solitude would be expected to occur at the areas where D&F drops its clients: Nellie Lake, the Twin Lakes/George Lake area, Jewel Lake, Bill Lake, George Lake and Walling Lake. Private visitors would continue to have a much greater impact to opportunities for solitude. It would be difficult to discern the difference in opportunities for solitude between this alternative and Alternatives 2 and 3.

There would be no effect to opportunities for an unconfined type of recreation, with the exception of those visitors who would no longer visit the Kaiser Wilderness because they were only able to visit by hiring commercial pack stations. Visitors who entered the Kaiser Wilderness would not have any more or less freedom to move about the Kaiser Wilderness under this alternative than under the current condition.

Overall, there would be an adverse impact to the wilderness character quality of outstanding opportunities for solitude or a primitive and unconfined type of recreation. While there would be a minimal positive impact to opportunities for solitude, there would be an elimination of the opportunity for primitive recreation on horseback for over 60% of visitors who enter the Kaiser Wilderness on horseback.

Summary of Direct and Indirect Effects to Wilderness Character
Overall, this alternative would have a no effect on wilderness character. The adverse impact to opportunities for solitude of a primitive and unconfined type of recreation would be balanced by the slight positive impact to the natural and undeveloped qualities of wilderness character. This alternative would accept some adverse impact to opportunities for solitude of a primitive and unconfined type of recreation in order to gain the slight positive impacts to both the natural and undeveloped qualities. In balancing the four qualities of wilderness character in order to protect wilderness character overall, this alternative favors the natural and undeveloped qualities over outstanding opportunities for solitude or a primitive and unconfined type of recreation. There are no effects to the untrammeled quality in the alternative.

Effects of Alternative 1 compared to Desired Condition
This alternative would not push the Kaiser Wilderness outside of its desired condition, as outlined in the 1991 Sierra NF LRMP, but would shift the way the forest would meet the condition of "Opportunities for quality wilderness experiences enhanced." Because the phrase "quality wilderness experiences" has many interpretations, this alternative would either enhance or degrade the forest's ability to meet this condition depending on individual opinions of what entails a "quality wilderness experience". The shift in the way that the agency would be able to meet this condition would simply be a shift to favor

slightly less use (and therefore slightly more opportunities for solitude and an ability to experience a slightly increased naturalness and slightly decreased development) over a greater range of opportunities to experience the Kaiser Wilderness by primitive travel on horseback.

All other elements of the desired conditions would be unaffected by this alternative, and therefore would continue to be met. This alternative would therefore meet all desired conditions, ensuring that the wilderness character is not breaching the threshold required to preserve wilderness character.

Alternative 2

Direct and Indirect Effects

Untrammeled Quality of Wilderness Character

There are no effects to the untrammeled quality of wilderness character. As stated above, impacts to this quality are generally the result of major structural installations (such as dams) or ecosystem-wide management actions (such as fire suppression). Since there are no actions of this type proposed in this alternative, there is no effect.

Undeveloped Quality of Wilderness Character

There would be no effect to the undeveloped quality of wilderness character. Use by commercial pack stations would continue at the same levels and in the same locations. The possibility exists that commercial pack stations could create new campsites, but this is unlikely given the fact that the commercial pack stations will be restricted to system trails, approved use trails and cross-county travel that does not cause a discernable tread to form. Nearly all destinations within the Kaiser Wilderness, with the exception of several lakes on the northwest side of the wilderness, have either system trails or approved use trails accessing them, so there would be little incentive to go off-trail to new destinations and create new campsites. In addition, there are few incentives for the commercial pack stations to develop additional campsites within the wilderness, as all destinations within the Kaiser Wilderness are accessible from their headquarters at Huntington Lake within a day ride (this includes the trip in and out). If additional campsites were developed by commercial pack stations under this alternative, there would be an adverse impact to the undeveloped quality of wilderness character.

There would be no effect on the amount of structures needed on trails to ensure trail stability. The same amount of structures required at present would be required under this alternative, as use levels and locations would be expected to remain the same as present use levels and locations. The commercial pack stations would be prohibited from using use trail KAI01, but this would have no effect on trail structures, as this trail is currently stable, has no trail structures at the present time, and would see no decrease in stability (therefore possibly requiring structures) when commercial stock are removed from the trail.

Natural Quality of Wilderness Character

There would be no effect to the natural quality of wilderness character under this alternative when compared to current conditions. A summary of the effects to the natural

quality is presented here, but for a detailed description of individual aspects of the physical and biological environment; please refer to the following sections:

- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

There would be no change to the current condition of the natural quality of wilderness character. There would be no change in effect to soil resources, water resources, botanical resources, grazing resources, wildlife resources, or aquatic resources. The reason that there is no change to these resources is that there would be no expected change to current use levels or use patterns which are essentially reflected under this alternative.

Overall, there would be no effect to the natural quality of wilderness character compared to the current condition of the natural quality of wilderness character.

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality of Wilderness Character
There would be no effect on opportunities for solitude under this alternative. Because use patterns and use levels would be expected to remain the same, impacts described in the "Affected Environment" portion to this quality of wilderness character from commercial pack stations would be expected to persist at the same levels.

Summary of Direct and Indirect Effects to Wilderness Character
There would be no expected changes to any of the qualities of wilderness character when compared to the current condition (see "Affected Environment") under this alternative. Because commercial pack station use levels and use patterns are expected to remain the same, there is no effect to wilderness character in this alternative when compared to the current condition of wilderness character. As stated in the "Undeveloped Quality of Wilderness Character" portion, it is possible that pack stations could develop addition campsites within the Kaiser Wilderness under this alternative, but due to the reasons described, that situation appears to be unlikely, and will be monitored through annual reports submitted by commercial pack stations. If additional campsites were developed, there would be a slightly adverse impact to wilderness character in this alternative.

Effects of Alternative 2 compared to Desired Conditions
This alternative would not push the Kaiser Wilderness outside of its the desired condition, as outlined in the 1991 Sierra NF LRMP. Unlike Alternative 1, this alternative would maintain the current method of ensuring that the desired conditions are met. This alternative would continue to ensure that the desired condition of "Opportunities for quality wilderness experiences enhanced" would be met, but would take the approach of providing opportunities to experience the Kaiser Wilderness on horseback while accepting a minimal adverse impact in the natural and undeveloped qualities of

wilderness character, as well as a minimal adverse impact to opportunities for solitude, as compared to Alternative 1.

All other elements of the desired conditions would be unaffected by this alternative, and therefore would continue to be met. This alternative would therefore meet all desired conditions, ensuring that the wilderness character is not breaching the threshold required to preserve wilderness character.

Alternative 3

Direct and Indirect Effects

Untrammeled Quality of Wilderness Character

There are no effects to the untrammeled quality of wilderness character. As stated above, impacts to this quality are generally the result of major structural installations (such as dams) or ecosystem-wide management actions (such as fire suppression). Since there are no actions of this type proposed in this alternative, there is no effect.

Undeveloped Quality of Wilderness Character

The effect to the undeveloped quality of wilderness character would be the same as Alternative 2, which is no effect. In this alternative, there would be no possibility of any additional campsites being developed at new locations because of the requirement for commercial pack stations to drop clients within designated destination zones and hold stock overnight in designated stock camps. By designating destination zones at Twin Lakes, George Lake, Jewell Lake, Walling Lake, Bill Lake and Nellie Lake, and designating an overnight stock camp at Nellie Lake, there will be no possibility of dropping off clients anywhere outside of these zones. These zones were selected because they are a reflection of current use patterns, which do not breach desired conditions for the Kaiser Wilderness (see Affected Environment). Therefore, there will be no difference to the undeveloped quality from Alternative 2, which expects that there will be no change in use patterns. This alternative simply solidifies those use patterns and ensures that the patterns will not change. Alternative 2 assumes that the use patterns will not change (with detailed descriptions of why this assumption is appropriate in Alternative 2), but does not necessarily ensure that they will not change.

Natural Quality of Wilderness Character

There would be no effect to the natural quality of wilderness character under this alternative when compared to current conditions. A summary of the effects to the natural quality is presented here, but for a detailed description of individual aspects of the physical and biological environment; please refer to the following sections:

- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

There would be no change to the current condition of the natural quality of wilderness character. There would be no change in effect to soil resources, water resources,

botanical resources, grazing resources, wildlife resources or aquatic resources. The reason that there is no change to these resources is that this alternative restricts commercial pack stations to the same use levels and use patterns that are currently taking place within the Kaiser Wilderness, and does not allow for future changes in use levels or future changes in use patterns (e.g. camping at different destinations than currently used or increasing the number of trips to destinations that are currently being used). Alternative 2 assumes that there will be no change in use patterns, but does not ensure that there will be no change because there are no spatial restriction on where pack stations can camp or how many times they cam camp in the same location (see Alternative 2 for a detailed description of why this assumption is made).

Overall, there would be no effect to the natural quality of wilderness character compared to the current condition of the natural quality of wilderness character.

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality of Wilderness Character

There would be no net effect to opportunities for solitude or a primitive and unconfined type of recreation in this alternative, though there would be some effects to individual portions of this quality. Overall, the effects are the same as in Alternative 2, because use patterns would be the same. However, there would be minimal adverse impacts to the ability for commercial pack station clients to experience opportunities for unconfined recreation because they in fact would be confined to camping within destinations zones in the Kaiser Wilderness unless they decided to haul their supplies by foot to a location outside of the destination zone, which is unlikely. The reason that this impact is considered minimal is because the destination zones available to the commercial pack stations in this alternative contain 123 of the 167 campsites inventoried within the Kaiser Wilderness. Since campsites are an indication of where visitors desire to camp in the wilderness, 74% of all locations where visitors have desired to camp within the Kaiser Wilderness since its designation in 1976 would be available to commercial pack station clients. There would also be minimal positive impact to opportunities for solitude, because this alternative would ensure that there are slightly fewer users in areas of the wilderness outside of the destination zones. Considering that commercial pack station client's account for only 3.4% of all overnight use in the Kaiser Wilderness, this positive impact would be minimal.

Overall there would be no effect to opportunities for solitude or a primitive and unconfined type of recreation in this alternative.

Summary of Direct and Indirect Effects to Wilderness Character

There are no effects to any of the individual qualities of wilderness character, and therefore no effects to wilderness character in this alternative. What this alternative ultimately does is to ensure that there will not be an expansion of commercial pack station use patterns or use locations in the future.

Effects of Alternative 3 compared to Desired Conditions
Same as Alternative 2, because use levels and use patterns of commercial pack stations are expected to remain the same.

Cumulative Effects Common to All Alternatives
Table 3.2 documents other past, present and reasonably foreseeable future actions that that may also have an impact on resources analyzed in Chapter 3. This section will discuss the incremental impacts to wilderness character of the relevant actions listed in this table. To analyze the cumulative effects to wilderness character in the Kaiser Wilderness, a cumulative effects analysis area was identified. This analysis area includes all lands within the Congressionally-designated wilderness boundary. This area is considered because it is the boundary within which commercial pack stations and their clients are allowed to travel within the Kaiser Wilderness, and therefore the area where they can have a cumulative impact to wilderness character. The time frame of the analysis is from the late 1800s, when livestock grazing began to occur forest-wide, through 20 years into the future, which is the length of the proposed action SUP. Prior to the late 1800s, Euro-Americans had not yet developed the area to the level that is today considered to affect qualities of wilderness. Beyond 20 years into the future, the commercial pack station permits would have to be re-issued, and another environmental assessment would have to occur, which would disclose any effects further into the future.

Untrammeled Quality of Wilderness Character
Past and Present Actions
The only major adverse impact to the untrammeled quality of wilderness character in the Kaiser Wilderness is fire suppression. The suppression of fire both inside and outside of the wilderness does not allow fire to play its natural role in the ecosystem, which is a manipulation of the ecosystem. The suppression of fire is often a necessity within the Kaiser Wilderness due to its proximity to recreational residences outside of the Kaiser Wilderness, but it is nevertheless an adverse impact to the untrammeled quality.

Future Actions
There are no foreseeable positive impacts to the untrammeled quality of wilderness character in predictable future actions. As discussed in each alternative, there would be no effect from commercial pack stations to the untrammeled quality in any of the alternatives.

Undeveloped Quality of Wilderness Character
Past and Present Actions
There are several sources of impacts to the undeveloped quality of wilderness character that have cumulative effects. The largest impact to the undeveloped quality is the presence of campsites created by visitors to the Kaiser Wilderness, which is a consequence of past and ongoing recreation activities within the wilderness. In total, 167 campsites were inventoried within the Kaiser Wilderness between 2001 and 2005. At least one developed campsite is present at every lake within the Kaiser Wilderness with the exception of the Horsethief Lakes. As commercial pack stations only use approximately a dozen of these, at least 93% of all campsites can be attributed to private

visitors to the Kaiser Wilderness. The dozen campsites used by commercial pack station clients are also used by private visitors. Therefore, it is likely that over 95% of all the campsites within the Kaiser Wilderness can attributed to private visitors. The impact that commercial pack stations contribute to the number of campsites (5% or less of all campsites) pales in comparison to the private visitors.

A second source of impact to the undeveloped quality is the presence of signs within the wilderness, which is a consequence of past and present wilderness management activities. There are no signs within the Kaiser Wilderness that are a direct or indirect effect of commercial pack stations.

A third source of impact to the undeveloped quality is the presence of trails and trail structures designed to retain soil and disperse water, which is a consequence of past and present wilderness and trail management activities. A trails system of any sort impacts the undeveloped quality of wilderness character, the natural quality of wilderness character, and opportunities for solitude, as visitors are typically concentrated along developed trails. Therefore, all alternatives will have an impact to these qualities of wilderness character since trails will still be present within the Kaiser Wilderness regardless of which alternative is selected. However, the primary purpose of a trail system within wilderness is to protect from even greater damage to both the undeveloped and natural qualities of wilderness character. Multiple trailing, erosion, incision, damage to riparian areas, and a proliferation of trails would be the expected result of the lack of a developed and maintained trail system. Visitors will enter the wilderness areas whether a trail system is present of not, and the development of a trail system ultimately protects wilderness character to a greater degree than the lack of a designated trail system would protect wilderness character. The presence of commercial pack stations has no effect on the presence of the trails system or on the need for the number of trail structures present in the Kaiser Wilderness (though in other wilderness areas, such as the John Muir and Ansel Adams Wilderness areas, the presence of commercial pack stations does require the presence of addition trail structures on certain trails to ensure trail stability).

The only positive cumulative impact to this quality is the agency regulations restricting use in the Kaiser Wilderness by restricting the number of visitors allowed to enter the wilderness per day for overnight trips, which is related to past and present wilderness management activities. Without the restrictions, there would be no regulation on the number of visitors allowed to enter each day for overnight trips, and it is possible that there would be a proliferation of campsites above the current 167 campsites that have been inventoried.

Future Actions

The only foreseeable future action that could affect this quality is the stabilization of the Walling Lake use trail (KAI02), which would be a consequence of future wilderness and trail management activities. There are currently no plans to stabilize this use trail, which is primarily used by commercial pack stations. The trail would remain closed to commercial pack stations (in Alts. 2 and 3) until it is repaired. The repair of this trail

would have a slight adverse impact to the undeveloped quality of wilderness character due to the installation of structures that would be required to stabilize the trail.

Natural Quality of Wilderness Character
Please refer to the following sections for a detailed discussion of the cumulative impacts to the natural quality of wilderness character:

- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

Past and Present Actions
The largest impact to the natural quality of wilderness character that is not noted in the above sections is the stocking of non-native fish. This action has a large impact to the natural quality because of its sweeping extent across the wilderness. Non-native fish are present in most lakes and streams, and possibly every lake, within the Kaiser Wilderness. Non-native fish are not natural to the ecosystem, so their presence alone is an adverse impact to the natural quality. In addition, non-native fish often prey on native fish and amphibians, impacting their populations. It is also likely that this predation leads to cascading effects on aquatic vegetation. The presence of non-native fish has likely impacted most or all aquatic ecosystems within the Kaiser Wilderness.

Commercial pack stations have no effect on the presence of non-native fish within the Kaiser Wilderness. The adverse impact of commercial stock to the natural quality, when compared to these effects as well as the cumulative effects described in each of the sections listed above, is minimal.

Future Actions
The only foreseeable future action that may impact the natural quality is the repair of the Walling Lake use trail (KAI02), which would be a consequence of future wilderness and trail management activities. There are currently no plans to stabilize this use trail, which is primarily used by commercial pack stations. The trail would remain closed to commercial pack stations (in Alts. 2 and 3) until it is repaired. The repair of this trail would have a slight positive impact to the natural quality of wilderness character because of the stabilization of soil in the trail tread. Currently soil in the tread is unstable and being lost, and will likely continue to be lost until the trail is repaired.

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality of Wilderness Character
Past and Present Actions
The largest adverse impact to this quality is related to past and present recreational activities. Private visitors account for 96.6% of all overnight use in the Kaiser Wilderness, as measured by number of wilderness permits issued. When compared to the 3.4% of total use attributable to commercial pack stations, the adverse impacts to outstanding opportunities for solitude from private visitors dwarf the impact of

commercial pack stations. Because of the sheer number of private visitors in the Kaiser Wilderness, any individual visitor is much more likely to have their opportunity for solitude adversely impacted by a private visitor, either through physically encountering someone or through being displaced by the presence of one or more other camping parties, than they are to have their opportunity for solitude adversely impacted commercial pack station client.

The only additional cumulative adverse impacts to opportunities for solitude come from off-highway vehicle (OHV) activity, over-snow vehicle (OSV) activity and aircraft activity. Although these activities do not take place within wilderness, they occur near the boundaries of Kaiser Wilderness and their effects are present within wilderness in the form of noise disturbance. All three of these adversely impact opportunities for solitude because of the noise disturbance occurring inside of the Kaiser Wilderness by their operation outside of the Kaiser Wilderness.

The only positive cumulative impact to outstanding opportunities for solitude are the agency regulations restricting use in the Kaiser Wilderness by restricting the number of visitors allowed to enter the wilderness per day for overnight trips, which is related to past and present wilderness management activities. Without the restrictions, there would be no regulation on the number of visitors allowed to enter each day for overnight trips, and it is possible that opportunities for solitude would be more adversely impacted than it is currently.

The only adverse impact to outstanding opportunities for unconfined recreation are the agency regulations prohibiting camping from within 100 feet of and body of water and within 200 feet of the Upper Twin Lake and Nellie Lake, which is a consequence of past and present wilderness management activities. In addition, agency regulations prohibit stock from being within ¼ mile of Bonnie Lake, Bobby Lake, Bill Lake, Jewel Lake, Campfire Lake, and Walling Lake except by special use permit. The presence of commercial pack station did not have any effect on the development of these regulations, which have positive impacts to the natural quality of wilderness character.

There are no cumulative impacts to opportunities for primitive recreation.

When compared to these cumulative adverse impacts to opportunities for solitude or a primitive and unconfined type of recreation, the adverse impacts related to commercial pack stations are minimal.

Future Actions
There are no foreseeable future actions that will affect outstanding opportunities for solitude or a primitive and unconfined type of recreation.

Summary of Cumulative Effects to Wilderness Character
There are many impacts to wilderness character. Only a few of the individual impacts have a significant impact to wilderness character when taken individually. Collectively, though, the impacts add up to a less wild place. The vast majority of impacts to the

wilderness character of the Kaiser Wilderness are outside of the scope of this analysis, and but have adverse impacts to the qualities of wilderness character.

Cumulative Effects compared to Desired Condition
The only effect of the cumulative impacts that breaches the threshold for protecting wilderness character as outlined by the desired conditions is that vegetation has not been returned to a more natural condition through the use of prescribed or natural fire. Decisions affecting this element of the desired condition are outside of the scope of this analysis.

DINKEY LAKES WILDERNESS

Alternative 1

Direct and Indirect Effects

Untrammeled Quality of Wilderness Character
There are no effects to the untrammeled quality of wilderness character. Currently, the commercial pack stations have no effect on this quality, and there would be no effect if the commercial pack stations no longer operated in the wilderness. The designation of a trails system within the Dinkey Lakes Wilderness in this alternative would be the same as the present trails system, which does not have an impact to the untrammeled quality. As stated above, impacts to this quality are generally the result of major structural installations (such as dams) or ecosystem-wide management actions (such as fire suppression). Since there are no actions of this type in this alternative, there would be no effect.

Undeveloped Quality of Wilderness Character
There are several effects to the undeveloped quality of wilderness character in the Dinkey Lakes Wilderness caused by this alternative. As stated in the "Affected Environment", 189 campsites were inventoried within the Dinkey Lakes Wilderness between 2001 and 2005, and only 8 or 9 of these sites are currently used by commercial pack stations and their clients. These are located at Cliff Lake, South Lake, Second Dinkey Lake, Island Lake, Rock Lake, Rock Meadow, Perkins Camp and Nelson Lake. The removal of commercial pack stations from the Dinkey Lakes Wilderness would have a positive impact to the undeveloped quality of these sites, but would not affect any of the other 180 inventories campsites. It is likely that the campsites located at the lakes are also utilized by private visitors, and so the only expected positive impact to the undeveloped quality would be the naturalization over time of areas used to hold stock while loading and unloading, and areas used to hold stock overnight at Cliff Lake. The campsites located at Rock Meadow and near Perkins Camp would be expected to naturalize over time and eventually disappear, as it is unlikely that they are used by other visitors to the Dinkey Lakes Wilderness. Therefore, of the 189 inventoried sites, five (Cliff Lake, South Lake, Second Dinkey Lake, Island Lake, and Rock Lake) would be expected to have minimal positive impacts to the undeveloped quality, while two additional sites at near Perkins Camp and Rock Meadow would be expected disappear over time. Overall, the effect would be a minimal positive impact due to the partial or total naturalization of seven campsites.

There would be no effect to the undeveloped quality related to trail structures. The terrain of the Dinkey Lakes Wilderness generally not rugged, and few trail structures are presently needed. The removal of commercial pack stations from the Dinkey Lakes Wilderness would not create a decreased need for trail structures to be in place to retain soil and divert water. Whether stock are present or not, these structures would be required. In other areas, such as the John Muir and Ansel Adams Wilderness areas, there might be an expected affect because commercial stock use is greater and terrain is generally steeper, but this is not the case in the Dinkey Lakes Wilderness. Since the Dinkey Lakes Wilderness Trail Plan designated in this alternative would be identical to the current trail system, there would be no effects to the undeveloped quality due to additions or removals of trail structures.

The Dinkey Lakes Wilderness Trail Plan designated in this alternative would have no effect to the current condition of the undeveloped quality of wilderness character, as it is identical to the current trail plan. No new trails would be added to the system, and none would be removed. Therefore, there would be no effect to the undeveloped quality.

Overall there would be a minimal positive impact to the undeveloped quality of wilderness character in this alternative due to the partial or total naturalization of nine campsites in the Dinkey Lakes Wilderness.

Natural Quality of Wilderness Character
There would be a positive impact to the natural quality of wilderness character under this alternative. A summary of the effects to the natural quality is presented here, but for a detailed description of individual aspects of the physical and biological environment; please refer to the following sections:

- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

Several changes from the current condition would result in a positive impact to the natural quality. The removal of commercial pack stations would decrease fecal coliform related to manure in the wilderness. Meadows that are currently used by commercial pack stations, primarily Rock Meadow, would see decreased soil compaction, but there would be a minimal positive impact because Rock Meadow is also part of the Blasingame Allotment and is grazed by cattle and recreational private stock, which also cause soil compaction and trampling. As a result of the cessation of commercial pack stock grazing, there would be a slight positive impact to the natural quality due to slightly less disturbance of habitat for aquatic species. There would be slightly less disturbance to wildlife in the area from commercial pack stock, but the currently the only effects are related to wildlife leaving the area temporarily while commercial stock are present, and returning after the commercial stock depart. There would be no effect to botanical resources. There would be a minimal decrease in sedimentation due to erosion from

commercial pack stock on trails, but since most of the trails in the Dinkey Lakes Wilderness are stable, the effect would be minimal.

Overall there would be a minimal positive impact to the natural quality of wilderness character in this alternative because of minimally decreased impacts to fecal coliform levels, soil compaction, aquatic and terrestrial species habitat and sedimentation.

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality of Wilderness Character
There would be an adverse impact to opportunities for solitude or a primitive and unconfined type of recreation.

The removal of commercial pack stations from the Dinkey Lakes Wilderness would have an adverse impact on opportunities for primitive recreation. For many visitors who want to experience the Dinkey Lakes Wilderness on horseback, the services offered by D&F, CPO and HSPS are the only opportunities that they have to gain this primitive recreation experience. Between 2001 and 2005, 95 overnight permits were issued to private equestrians for the Dinkey Lakes Wilderness, compared to 46 permits issued to commercial pack stations. Therefore, 33% of all stock use in the Dinkey Lakes Wilderness, based on number of permits issued, can be attributed to commercial pack stations. The removal of the commercial pack stations from the wilderness would decrease the opportunities for primitive recreation for approximately 33% of all people who entered the Dinkey Lakes Wilderness on stock. These opportunities would be limited only to those who could afford to own private stock, or who were invited on a trip by private stock owners.

There would be a minimal positive impact to opportunities for solitude, due to both slightly fewer visitors to the area and slightly less displacement of private visitors from campsites due to commercial pack station clients. This impact would be expected to be minimal, however, as commercial stock use only accounts for 1.9% of total overnight use within the Dinkey Lakes Wilderness. The slight increase in opportunities for solitude would be expected to occur in the Rock Meadow and Cliff Lake areas, as 87% of all commercial stock traffic enter the Dinkey Lakes through the Badger Trailhead and the Cliff Trailhead, which access the Rock Meadow area and Cliff Lake area, respectively. The majority of the visitors to this wilderness (71% as measured by permits issued) use the Dinkey Lakes Basin, and that area would see a very limited increase in solitude. Private visitors would continue to have a much greater impact to opportunities for solitude, as they account for 98.1% of total use in this wilderness, as measured by the number of permits issued. It would be difficult to discern the difference in opportunities for solitude between this alternative and Alternatives 2 and 3.

There would be no effect to opportunities for an unconfined type of recreation, with the exception of those visitors who would no longer visit the Dinkey Lakes Wilderness because they were only able to visit by hiring commercial pack stations. Visitors who entered the Dinkey Lakes Wilderness would not have any more or less freedom to move about the wilderness under this alternative than under the current condition.

The designation of a trail system within the Dinkey Lakes Wilderness would have no effect on opportunities for solitude. It is possible that a trail system could have effects to opportunities for solitude by concentrating visitors in certain travel corridors and at certain destinations. The trail system designated in this alternative would be the same as the current trail system in the Dinkey Lakes Wilderness, and therefore would have no effect on opportunities for solitude by creating different visitor use patterns.

Overall, there would be an adverse impact to the wilderness character quality of outstanding opportunities for solitude or a primitive and unconfined type of recreation. While there would be a minimal positive impact to opportunities for solitude, there would be an elimination of the opportunity for primitive recreation on horseback for 33% of visitors who choose enter the Dinkey Lakes Wilderness on horseback with a commercial pack station.

Summary of Direct and Indirect Effects to Wilderness Character
Overall, this alternative would have no effect on wilderness character. The adverse impact to opportunities for solitude of a primitive and unconfined type of recreation would be balanced by the minimal positive impacts to the natural and undeveloped qualities of wilderness character. This alternative would accept some minimal adverse impacts to opportunities for solitude of a primitive and unconfined type of recreation in order to gain the minimal positive impacts to both the natural and undeveloped qualities. In balancing the four qualities of wilderness character in order to protect wilderness character overall, this alternative favors the natural and undeveloped qualities over outstanding opportunities for solitude or a primitive and unconfined type of recreation. There are no effects to the untrammeled quality in this alternative.

Effects of Alternative 1 compared to Desired Condition
The effects of this alternative would not push the Dinkey Lakes Wilderness outside of the desired conditions for the Dinkey Lakes Wilderness, as outlined in the 1991 Sierra NF LRMP, but would shift the way the forest would meet the condition of "Opportunities for quality wilderness experiences enhanced." Because the phrase "quality wilderness experiences" has many interpretations, this alternative would either enhance or degrade the forest's ability to meet this condition depending on individual opinions of what entails a "quality wilderness experience". The shift in the way that the agency would be able to meet this condition would simply be a shift to favor slightly less use (and therefore slightly more opportunities for solitude and an ability to experience a slightly increased naturalness and slightly decreased development) over a greater range of opportunities to experience the Dinkey Lakes Wilderness by primitive travel on horseback.

The effects of this alternative also would not push the Dinkey Lakes Wilderness outside of the desired conditions as outlined in the 2001 Wilderness Plan. The only adverse impacts to wilderness character from this alternative, which are the only type of impacts that would potentially push the Dinkey Lakes Wilderness outside of meeting desired conditions, occur from decreasing opportunities for primitive recreation. In spite of this decrease, desired social conditions for both the RC2 and RC3 areas would still be met.

Commercial pack stations currently do not operate within RC1 areas in the Dinkey Lakes Wilderness, so there would be no impact to this area.

In summary, this alternative would continue to allow conditions within the Dinkey Lakes Wilderness to meet all desired conditions, ensuring that the wilderness character is not breaching the threshold required to preserve wilderness character.

Alternative 2

Direct Indirect Effects

Untrammeled Quality of Wilderness Character

There are no effects to the untrammeled quality of wilderness character. As stated above, impacts to this quality are generally the result of major structural installations (such as dams) or ecosystem-wide management actions (such as fire suppression). Proposed use by commercial pack stations in this alternative does not propose any actions of this type. The designation of a trail system within the Dinkey Lakes Wilderness in this alternative also does not propose any actions of this type, and therefore would not have an impact to the untrammeled quality.

Undeveloped Quality of Wilderness Character

There would be an adverse impact to the undeveloped quality of wilderness character. Use by commercial pack stations would continue at the same levels and locations as occurred they occurred historically. The possibility exists that commercial pack stations could create new campsites, but this is unlikely given the fact that the commercial pack stations will be restricted to system trails, approved use trails and cross-county travel that does not cause a discernable tread to form. Nearly all destinations within the Dinkey Lakes Wilderness have either system trails or approved use trails accessing them, so there would be little incentive to go off-trail to new destinations and create new campsites. If additional campsites were developed by commercial pack stations under this alternative, there would be an adverse impact to the undeveloped quality of wilderness character.

There would be a minimal adverse impact to the undeveloped quality related to trail structures. The terrain of the Dinkey Lakes Wilderness generally not rugged, and few trail structures are presently needed. Because use levels and patterns of commercial stock would be expected to remain the same as at present levels under this alternative, there would be no additional impact to trails from commercial pack stock, and therefore no need for additional trails structures related to commercial pack stations. The Dinkey Lakes Wilderness Trail Plan designated in this alternative would add 6.8 miles of system trails and upgrade 20.4 miles of system trails (see Trails section 3.1.3 for description of trail classes). The added trails are all currently present on the ground, and were parts of previous trail systems. Because these trails (Frazier Trail, Tocher Lake Trail, Black Peak Trail, Perkins Cutoff Trail) are currently on the ground, there would be no new trail construction required, but the Black Peak Trail (added as a Trail Class 3, see design parameters in Table 2.20) would require additional trail structures on approximately ½ mile of the trail south of Rock Meadow, which would be an adverse impact to the undeveloped quality related to trail structures. Because all of the additional trails in this trail plan are present on the ground, there would be no effect to the undeveloped quality

related to the addition of these trails. The upgrade of 20.4 miles of trail (see Table 3.16) to a higher trail class (51% of the current trail system) would have an adverse impact to the undeveloped quality because some would require widening of the trails to meet design standards (see Table 2.20 for design standards). While this would generally only require widening the trails 6" to 12", there would still be a minimal adverse impact to the undeveloped quality of wilderness character.

Overall there would be an adverse impact to the undeveloped quality of wilderness character in this alternative due to the additional trail structures required on the Black Peak Trail and the trail class upgrade of 20.4 miles of trail currently in the trail system.

Natural Quality of Wilderness Character
There would be a positive impact to the natural quality of wilderness character under this alternative when compared to current conditions. A summary of the effects to the natural quality is presented here, but for a detailed description of individual aspects of the physical and biological environment; please refer to the following sections:

- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

There would be no change in effects to water resources, botanical resources, wildlife resources or aquatic resources. The reason that there is no change to these resources is that there would be no expected change to current use levels or use patterns under this alternative. There would be a positive impact to the grazing resources in this alternative, as commercial stock would no longer be allowed to graze in Rock Meadow, which would have a minimal positive effect as the meadow would still be grazed by cattle and recreational stock. There would be a positive impact to soil resources in this alternative. By adding the Frazier Trail, Perkins Cutoff Trail, Black Peak Trail and Tocher Lake Trail to the trail system, the Forest Service will be able to perform trail maintenance on these trails and ensure their stability over the long-term, although at present only the Black Peak Trail shows signs of instability. This alternative would allow for the ½ mile of trail south of Rock Meadow to be stabilized, therefore preventing additional soil loss. The ability to address resource issues on these trails would have a positive impact on the natural quality of wilderness character.

Overall, there would be a positive impact to the natural quality of wilderness character due to the ability to address resource issues on several trails that would be added to the trail system and due to the removal of commercial stock grazing from Rock Meadow.

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality of Wilderness Character
Overall there would be no effect on opportunities for solitude of a primitive and unconfined type of recreation under this alternative. In general, use patterns and use levels would be expected to remain the same, and impacts described in the "Affected

Environment" portion to this quality of wilderness character from commercial pack stations would be expected to persist at the same levels.

The Dogtooth Peak Trail would be closed to commercial stock in this alternative, which would have a minimal adverse impact to opportunities for unconfined recreation for commercial pack station clients. Conversely, there would be a minimal positive impact to opportunities for solitude along the Dogtooth Peak Trail, as there would be no commercial stock allowed on this trail. This trail is rarely used by commercial stock, and so the impacts to solitude and unconfined recreation would be very small.

The Island Lake Trail would be opened to commercial stock use in this alternative, which would have a minimal positive impact to opportunities for unconfined recreation for commercial pack station clients. Conversely, there would be a minimal adverse impact to opportunities for solitude along the Island Lake Trail, as there would now be commercial stock allowed on this trail. This trail is rarely used by commercial stock, and so the impacts to solitude and unconfined recreation would be very small.

Under this alternative, the positive impacts to solitude balance the negative impacts to unconfined recreation, and there is no overall effect to outstanding opportunities for solitude or an unconfined type of recreation.

Summary of Direct and Indirect Effects to Wilderness Character
There would be no effect to wilderness character in this alternative. The positive impact to the natural quality of wilderness character would balance against the negative effect to the undeveloped quality of wilderness character. This alternative would accept an adverse impact to the undeveloped quality of wilderness character in order to have a positive impact to the natural quality of wilderness character.

Effects of Alternative 2 compared to Desired Conditions
The effects of this alternative would not push the Dinkey Lakes Wilderness outside of the desired conditions for the Dinkey Lakes Wilderness, as outlined in the 1991 Sierra NF LRMP. Unlike Alternative 1, this alternative would maintain the current method of ensuring that these desired conditions are met. This alternative would continue to ensure that the desired condition of "Opportunities for quality wilderness experiences enhanced" would be met, but would take the angle of providing opportunities to experience the Dinkey Lakes Wilderness on horseback while accepting an adverse impact to the undeveloped quality of wilderness character and a positive impact to the natural quality of wilderness character.

The effects of this alternative also would not push the Dinkey Lakes Wilderness outside of the desired conditions as outlined in the 2001 Wilderness Plan. The only adverse impacts to wilderness character from this action, which are the only type impacts that would potentially push the Dinkey Lakes Wilderness outside of meet desired conditions, occur from the addition of trail structures to the Black Peak Trail, the widening of 20.4 miles of trail by 6" to 12", and the restriction of commercial stock from the Dogtooth Peak Trail. In spite of these adverse impacts, desired resource conditions within both the

RC2 and RC3 areas would still be met. Commercial pack stations to not operate within RC1 areas of the Dinkey Lakes Wilderness.

In summary, this alternative would continue to allow conditions within the Dinkey Lakes Wilderness to meet all desired conditions, ensuring that the wilderness character is not breaching the threshold required to preserve wilderness character.

Alternative 3

Direct and Indirect Effects

Untrammeled Quality of Wilderness Character

There are no effects to the untrammeled quality of wilderness character, for the same reasons as stated in Alternative 2.

Undeveloped Quality of Wilderness Character

There would be an adverse effect to the undeveloped quality of wilderness character. Use by commercial pack stations would continue at the same levels and in the same locations. In this alternative, there would be no possibility of any additional campsites being developed at new locations because of the requirement for commercial pack stations to drop clients within designated destination zones and hold stock overnight in designated stock camps. By designating destination zones at Rock Meadow, Nelson Lake, Cliff Lake, Rock Lake, Second Dinkey Lake, Island Lake, South Lake and near Perkins Camp, and by designating overnight stock camps at Cliff Lake, Rock Meadow and near Perkins Camp, there will be no possibility of dropping off clients anywhere outside of these zones. These zones were selected because they are a reflection of current use patterns, which do not breach desired conditions for the Dinkey Lakes Wilderness (see Affected Environment). Therefore, there will be no difference in campsite development from Alternative 2, which expects that there will be no change in use patterns. This alternative simply solidifies the current use patterns and ensures that the patterns will not change. Alternative 2 assumes that the use patterns will not change (with detailed descriptions of why this assumption is appropriate in Alternative 2), but does not necessarily ensure that they will not change.

There would be a minimal adverse impact to the undeveloped quality related to trail structures. The terrain of the Dinkey Lakes Wilderness generally not rugged, and few trail structures are presently needed. Because use levels and patterns of commercial stock would be expected to remain the same as at present levels under this alternative, there would be no additional impact to trails from commercial pack stock, and therefore no need for additional trails structures related to commercial pack stations. The Dinkey Lakes Wilderness Trail Plan designated in this alternative would add a net of 1.5 miles of system trails (some would be removed from the system and some would be added, totaling a net gain of 1.5 miles of systems trails – see Dinkey Lakes Wilderness Plan in Table 2.17 for details) and upgrade 12.6 miles of system trails. The added trails are all currently present on the ground, and were parts of previous trail systems. Because these trails (Frazier Trail and Black Peak Trail) are currently on the ground, there would be no new trail construction required, but the Black Peak Trail (added as a Trail Class 2, see design parameters in Table 2.20) would require additional trail structures on

approximately ½ mile of the trail south of Rock Meadow, which would be an adverse impact to the undeveloped quality related to trail structures.

The Dinkey Lakes Wilderness Trail Plan designated in this alternative would add approximately 1.5 miles of trail to the trail system and upgrade approximately 12.6 miles of trail to a higher trail class (see Trails section 3.1.3 for description of trail classes). These added trails are already present on the ground and would not require additional trail construction, aside from the structures required on the Black Peak Trail described above. Because all of the additional trails in this trail plan are present on the ground, there would be no effect to the undeveloped quality related to the addition of these trails. The upgrade of 12.6 miles of trail to a higher trail class (31% of the current trail system) would have an adverse impact to the undeveloped quality because some would require widening of the trails to meet design standards (see Table 2.20 for design standards). While this would generally only require widening the trails 6" to 12", there would still be a minimal adverse impact to the undeveloped quality of wilderness character.

Overall there would be an adverse impact to the undeveloped quality of wilderness character in this alternative due to the additional trail structures required on the Black Peak Trail and the trail class upgrade of 12.6 miles of trail currently in the trail system.

Natural Quality of Wilderness Character
There would be a positive impact to the natural quality of wilderness character under this alternative when compared to current conditions. A summary of the effects to the natural quality is presented here, but for a detailed description of individual aspects of the physical environment, please refer to the following sections:

- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

There would be no change in effects to water resources, botanical resources, wildlife resources or aquatic resources. The reason that there is no change to these resources is that this alternative restricts commercial pack stations to the same use levels and use patterns that are currently taking place within the Dinkey Lakes Wilderness, and does not allow for future changes in use levels or future changes in use patterns (e.g. camping at different destinations than currently used or increasing the number of trips to destinations that are currently being used). Alternative 2 assumes that there will be no change in use patterns, but does not ensure that there will be no change because there are no spatial restriction on where pack stations can camp or how many times they cam camp in the same location (see Alternative 2 for a detailed description of why this assumption is made). There would be a positive impact to the grazing resources in this alternative, as commercial stock would no longer be allowed to graze in Rock Meadow, which would have a minimal positive effect as the meadow would still be grazed by cattle and recreational stock. There would be a positive impact to soil resources in this alternative. By adding the Frazier Trail and Black Peak Trail to the trail system, the Forest Service

will be able to perform trail maintenance on these trails and ensure their stability over the long-term, although at present only the Black Peak Trail shows signs of instability. This alternative would allow for stabilization of the ½ mile of trail south of Rock Meadow to be stabilized, therefore preventing additional soil loss. The ability to address resource issues on these trails would have a positive impact on the natural quality of wilderness character.

In addition, the Ershim Lake Trail would be removed from the trail system. This trail is currently stable, and the removal of the trail from the system would allow for its naturalization over the long-term, which would increase natural quality of the botanical and soil resources on the trail. The removal of this trail from the trail system would have a positive effect on the natural quality of wilderness character.

Overall, there would be a positive impact to the natural quality of wilderness character due to the ability to address resource issues on several trails that would be added to the trail system, ad due to the removal of the Ershim Lake Trail from the trail system, and due to the removal of commercial stock grazing from Rock Meadow.

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality of Wilderness Character

There would be no net effect to opportunities for solitude or a primitive and unconfined type of recreation in this alternative, though there would be some effects to individual portions of this quality. Overall, the effects are the same as in Alternative 2, because use patterns would be the same. However, there would be minimal adverse impacts to the ability for commercial pack station clients to experience opportunities for unconfined recreation because they in fact would be confined to camping within destination zones in the Dinkey Lakes Wilderness unless they decided to haul their supplies by foot to a location outside of the destination zone, which is unlikely. The reason that this impact is considered minimal is because the destination zones were designated to allow commercial packers to take clients where they have historically wanted to go, while limiting the extent of the destination zone to ensure that any sensitive resources are not included within the destination zone. These exclusions did not preclude camping at any of the sites used in recent history by the commercial packers. Therefore, it is not expected that there would be any significant impact to opportunities for unconfined recreation. There would also be minimal positive impact to opportunities for solitude, because this alternative would ensure that there are slightly fewer users in areas of the wilderness outside of the destination zones. Considering that commercial pack station clients account for only 1.9% of all overnight use in the Dinkey Lakes Wilderness, this positive impact to solitude would be minimal.

Like Alternative 2, the Dogtooth Peak Trail would be closed to commercial stock in this alternative, which would have a minimal adverse impact to opportunities for unconfined recreation for commercial pack station clients. Conversely, there would be a minimal positive impact to opportunities for solitude along the Dogtooth Peak Trail, as there would be no commercial stock allowed on this trail. This trail is rarely used by

commercial stock, and so the impacts to solitude and unconfined recreation would be very small.

The Island Lake Trail would be opened to commercial stock use in this alternative, which would have a minimal positive impact to opportunities for unconfined recreation for commercial pack station clients. Conversely, there would be a minimal adverse impact to opportunities for solitude along the Island Lake Trail, as there would now be commercial stock allowed on this trail. This trail is rarely used by commercial stock, and so the impacts to solitude and unconfined recreation would be very small.

Overall there would be no effect to opportunities for solitude or a primitive and unconfined type of recreation in this alternative.

Summary of Direct and Indirect Effects to Wilderness Character
There would be no effect to wilderness character in this alternative. The positive impact to the natural quality of wilderness character would balance against the negative effect to the undeveloped quality of wilderness character. This alternative would accept an adverse impact to the undeveloped quality of wilderness character in order to have a positive impact to the natural quality of wilderness character. The difference between this alternative and Alternative 2 is that this alternative ensures that the current use levels and use patterns will not change over time, and therefore ensures that the present effects of commercial stock to wilderness character, of which there are none, never change. Alternative 2 does not anticipate and change in use patterns over time, but it does not restrict commercial pack stations to only their current use patterns, and therefore the effects of pack stations on wilderness character could change over time, although this is not anticipated (see Alternative 2 for detailed explanation of why use patterns are not expected to change).

Effects of Alternative 3 compared to Desired Conditions
Same as Alternative 2, because use levels and use patterns of commercial pack stations are expected to remain the same, and because the Dinkey Lakes Trail Plan has less extensive development than in Alternative 2, and therefore this alternative also meets the desired conditions as it relates to the trail plan.

Cumulative Effects Common to All Alternatives
Table 3.2 documents other past, present and reasonably foreseeable future actions that that may also have an impact on resources analyzed in Chapter 3. This section will discuss the incremental impacts to wilderness character of the relevant actions listed in this table. To analyze the cumulative effects to wilderness character in the Dinkey Lakes Wilderness, a cumulative effects analysis area was identified. This analysis area includes all lands within the Congressionally-designated wilderness boundary. This area is considered because it is the boundary within which commercial pack stations and their clients are allowed to travel within the Dinkey Lakes Wilderness, and therefore the area where they can have a cumulative impact to wilderness character. The time frame of the analysis is from the late 1800s, when livestock grazing began to occur forest-wide, through 20 years into the future, which is the length of the proposed action SUP. Prior to

the late 1800s, Euro-Americans had not yet developed the area to the level that is today considered to affect qualities of wilderness. Beyond 20 years into the future, the commercial pack station permits would have to be re-issued, and another environmental assessment would have to occur, which would disclose any effects further into the future.

The cumulative effects to wilderness character for the Dinkey Lakes Wilderness are often similar to those in the Kaiser Wilderness, because many of the elements that cumulatively impact the wilderness character of the Dinkey Lakes Wilderness are also present in the Kaiser Wilderness.

Untrammeled Quality of Wilderness Character
Past and Present Actions
The only adverse impact to the untrammeled quality of wilderness character in the Dinkey Lakes Wilderness is fire suppression. The suppression of fire both inside and outside of the wilderness does not allow fire to play its natural role in the ecosystem, which is a manipulation of the ecosystem. The suppression of fire is often a necessity within the Dinkey Lakes Wilderness due to the potential for large wildfires to develop and spread outside of the wilderness is they are not suppressed within wilderness, but it is nevertheless an adverse impact to the untrammeled quality.

Future Actions
There are no foreseeable positive impacts to the untrammeled quality of wilderness character in predictable future actions. As discussed in each alternative, there would be no effect from commercial pack stations to the untrammeled quality in any of the alternatives.

Undeveloped Quality of Wilderness Character
Past and Present Actions
There are several sources of impacts to the undeveloped quality of wilderness character that have cumulative effects. The largest impact to the undeveloped quality is the presence of campsites created by visitors to the Dinkey Lakes Wilderness, which is a consequence of past and present recreational activities within the wilderness. In total, 189 campsites were inventoried within the Dinkey Lakes Wilderness between 2001 and 2005. Much of the northeast and northwest portions of the wilderness have not been inventoried, but there are certainly campsites in these areas as well, though it is likely that they are present in far fewer quantities than the already-surveyed portion of the wilderness because there are no major destinations in northeast and northwest areas of the wilderness. Any campsites that may be present in these unsurveyed portions of the wilderness are not attributable to commercial pack stations, as commercial pack stations do not use these areas for overnight stock camps or spot and dunnage trips. The only campsites that are partially or totally attributable to commercial pack stations are the spot and dunnage sites and overnight stock camps proposed in Alternatives 2 and 3. As these are the only campsites used by commercial pack stations, at least 95% of all campsites can be attributed to private visitors to the Dinkey Lakes Wilderness, and that number will probably rise to 96% or 97% as the remainder of the wilderness is surveyed. Five of the seven campsites used by commercial pack station clients are also used by private visitors.

The impact that commercial pack stations contribute to the number of campsites (4% or less of all campsites) pales in comparison to the private visitors.

A second source of impact to the undeveloped quality is the presence of signs within the wilderness, which is a consequence of past and present wilderness management activities. Signs are installed by the Sierra National Forest as either directional signs (at trail junctions) or, in a few rare cases, as regulatory signs (for example, "No Camping" signs near some lakes within the Dinkey Lakes Basin. There are no signs within the Dinkey Lakes Wilderness that are a direct or indirect effect of commercial pack stations, although it is likely that if Alternative 3 is selected, there will temporarily be small signs installed at each designated stock camp in order to ensure that the commercial pack stations know exactly where their camp has been designated.

A third source of impact to the undeveloped quality is the presence of trails and trail structures designed to retain soil and disperse water, which is a consequence of past and present wilderness and trail management activities. A trails system of any sort impacts the undeveloped quality of wilderness character, the natural quality of wilderness character, and opportunities for solitude, as visitors are typically concentrated along developed trails. Therefore, all alternatives will have an impact to these qualities of wilderness character since trails will still be present within the Dinkey Lakes Wilderness regardless of which alternative is selected. However, the primary purpose of a trail system within wilderness is to protect from even greater damage to both the undeveloped and natural qualities of wilderness character. Multiple trailing, erosion, incision, damage to riparian areas, and a proliferation of trails would be the expected result of the lack of a developed and maintained trail system. Visitors will enter the wilderness areas whether a trail system is present of not, and the development of a trail system ultimately protects wilderness character to a greater degree than the lack of a designated trail system would protect wilderness character. The presence of commercial pack stations has no effect on the presence of the trails system or on the need for the number of trail structures present in the Dinkey Lakes Wilderness (though in other wilderness areas, such as the John Muir and Ansel Adams Wilderness areas, the presence of commercial pack stations does require the presence of addition trail structures on certain trails to ensure trail stability).

The only positive cumulative impact to this quality are the agency regulations restricting use in the Dinkey Lakes Wilderness by restricting the number of visitors allowed to enter the wilderness per day for overnight trips, which is related to past and present wilderness management activities. Without the restrictions, there would be no regulation on the number of visitors allowed to enter each day for overnight trips, and it is possible that there would be a proliferation of campsites above the current 189 campsites that have been inventoried.

Future Actions

The only foreseeable future action that could affect this quality is the stabilization of the Black Peak Trail (27E08), which would be a consequence of future wilderness and trail management activities. There are currently no plans to stabilize this trail, which would be added to the official trail system in Alternatives 2 & 3. The repair of this trail would

have a slight adverse impact to the undeveloped quality of wilderness character due to the installation of structures that would be required to stabilize the trail.

Natural Quality of Wilderness Character
Please refer to the following sections for a detailed discussion of the cumulative impacts to the natural quality of wilderness character:

- 3.2.1 Watershed - Soils, Water Quality and Hydrology
- 3.3.1 Aquatics
- 3.3.2 Wildlife
- 3.3.3 Vegetation and Botanical Resources
- 3.3.4 Grazing Resources

Past and Present Actions
Two largest impacts to the natural quality of wilderness character that is not noted in the above sections is the presence of non-native fish, because of its sweeping extent across the wilderness. Non-native fish are present in most lakes and streams, and possibly every lake, within the Dinkey Lakes Wilderness have major effects on the natural quality as well. Non-native fish are not natural to the ecosystem, so their presence alone is an adverse impact to the natural quality. In addition, non-native fish often prey on native fish and amphibians, impacting their populations. It is also likely that this predation leads to cascading effects on aquatic vegetation. The presence of non-native fish has likely impacted most or all aquatic ecosystems within the Dinkey Lakes Wilderness.

Commercial pack stations have no effect on the presence of non-native fish within the Dinkey Lakes Wilderness. The adverse impact of commercial stock to the natural quality, when compared to these effects as well as the cumulative effects described in each of the sections listed above, is minimal.

Future Actions
The only foreseeable future action that may impact the natural quality is the repair of the Black Peak Trail (27E08), which would be a consequence of future wilderness and trail management activities. There are currently no plans to stabilize this use trail, which would be added to the official trail system under Alternatives 2 & 3. The repair of this trail would have a slight positive impact to the natural quality of wilderness character because of the stabilization of soil in the trail tread. Currently soil in the tread is unstable and being lost, and will likely continue to be lost until the trail is repaired.

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality of Wilderness Character
Past and Present Actions
The largest adverse impact to this quality is related to past and present recreational activities. Private visitors account for 98.1% of all overnight use in the Dinkey Lakes Wilderness, as measured by number of wilderness permits issued. When compared to the 1.9% of total use attributable to commercial pack stations, the adverse impacts to outstanding opportunities for solitude from private visitors dwarf the impact of commercial pack stations. Because of the sheer number of private visitors in the Dinkey

Lakes Wilderness, particularly in the Dinkey Lakes Basin, any individual visitor is much more likely to have their opportunity for solitude adversely impacted by a private visitor, either through physically encountering someone or through being displaced by the presence of one or more other camping parties, than they are to have their opportunity for solitude adversely impacted commercial pack station client.

The only additional cumulative adverse impacts to opportunities for solitude come from off-highway vehicle (OHV) activity, over-snow vehicle (OSV) activity and aircraft activity. Although these activities do not take place within wilderness, they occur near the boundaries of Dinkey Lakes Wilderness and their effects are present within wilderness in the form of noise disturbance. All three of these adversely impact opportunities for solitude because of the noise disturbance occurring inside of the Dinkey Lakes Wilderness by their operation outside of the Dinkey Lakes Wilderness. The presence of the Dusy-Ershim OHV Route along the eastern boundary of the Dinkey Lakes Wilderness will have the most prominent noise impact to areas of the Dinkey Lakes Wilderness which are near the route. This impact is primarily limited to the months of July through October, and is not present for the remainder of the year because the route is closed to use during the winter and spring months.

The only positive cumulative impact to outstanding opportunities for solitude is the agency regulations restricting use in the Dinkey Lakes Wilderness by restricting the number of visitors allowed to enter the wilderness per day for overnight trips. Without the restrictions, there would be no regulation on the number of visitors allowed to enter each day for overnight trips, and it is possible that opportunities for solitude would be more adversely impacted than it is currently.

The only adverse impact to outstanding opportunities for unconfined recreation are the agency regulations prohibiting camping from within 100 feet of and body of water, which is a consequence of past and present wilderness management activities. The presence of commercial pack station did not have any effect on the development of these regulations, which have positive impacts to the natural quality of wilderness character.

There are no cumulative impacts to opportunities for primitive recreation.

When compared to these cumulative adverse impacts to opportunities for solitude or a primitive and unconfined type of recreation, the adverse impacts related to commercial pack stations are minimal.

Future Actions
There are no foreseeable future actions that will affect outstanding opportunities for solitude or a primitive and unconfined type of recreation.

Summary of Cumulative Effects to Wilderness Character
There are many impacts to wilderness character. Only a few of the individual impacts have a significant impact to wilderness character when taken individually. Collectively, though, the impacts add up to a less wild place. The vast majority of impacts to the

wilderness character of the Dinkey Lakes Wilderness are outside of the scope of this analysis, and but have adverse impacts to the qualities of wilderness character.

Cumulative Effects compared to Desired Condition
The only effect of the cumulative impacts that breaches the threshold for protecting wilderness character as outlined by the desired conditions in the 1991 Sierra NF LRMP is that at the present time, vegetation has not been returned to a more natural condition through the use of prescribed or natural fire. Decisions affecting this element of the desired condition are outside of the scope of this analysis.

None of the cumulative effects impact the desired conditions outlined in the 2001 Wilderness Plan to a point that they would breach the threshold set by these conditions to protect wilderness character.

ANSEL ADAMS AND JOHN MUIR WILDERNESSES

Affected Environment

A comprehensive discussion of the wilderness resource for the Ansel Adam/John Muir AU can be found in the 2005 Pack Stock Management EIS on page III-20. This EIS incorporates that information by reference.

Environmental Consequences

Overall, the intensity of impacts to wilderness character in the AA/JM AU would be low to moderate and moderate to high at less than 25 site specific locations. Moderate impacts would occur in locations that can sustain higher levels of use and have been popular for decades by both commercial and non commercial visitors. These locations would be consistent with the recreation category desired conditions.

Impacts to wilderness character are primarily to naturalness and opportunities for solitude and/or primitive and unconfined recreation. Impacts to naturalness are minor in the long term at the wilderness scale, but can be severe at site specific locations, particularly in the heavily used Mono Creek corridor, Humphreys Basin and French Canyon. Impacts to opportunities for solitude occur in high use corridors and occasionally in other areas of the wilderness but tend to be short in duration and are avoidable. Opportunities for unconfined recreation are moderate to a portion of the public (clients of commercial pack stock and visitors wanting few to no encounters with pack stock) where travel is either prohibited or limited.

Impacts to a visitor's experience would be short in duration, particularly at popular destinations and on primary trails. While some impacts to natural conditions such as locally severe trail impacts may be longer term, they are not likely to have permanent adverse effects. Some long term adverse effects to wilderness character may result site specifically with trail development decisions as affected trails lose their primitive characteristics when improved and developed to facilitate uses. The same action (trail development) that may occur over the long term would enhance ecological and natural qualities of wilderness character.

There would be no regional, long term adverse impacts. Beneficial effects include improved wilderness character of many destinations where impact sources (pack stock) are removed. However, there would still be sources of impacts from other visitors at these locations. It is likely that the severity of the impact would be reduced over the short and long term. Some visitors that rely upon commercial pack stock support would be permanently affected by closure of these areas.

There would be no irretrievable or irreversible adverse effects since a strong element is managing for conditions and adapting techniques, controls and regulations to achieve the desired conditions. A monitoring component identifies indicators and thresholds for when to implement adaptive measures. This monitoring strategy is embedded in the direction to provide the assurance we need to modify and manage actions over time to prevent any irretrievable losses to the wilderness resource.

A comprehensive discussion of the environmental consequences to the wilderness resource for the AA/JM AU can be found in the 2005 Pack Stock Management EIS on pages IV-17, 64, 76, 93, 113, 130 and 148. This EIS incorporates that information by reference.

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3.1.2 Recreation – Non-Wilderness

3.1.2.1 Background

This section examines the recreational experience component and recreational environment in the non-wildernesses portions of the project area. The analysis looks at effects to the diversity and quality of recreational activities under each Alternative. The wilderness areas are discussed in the Wilderness section of Chapter 3 (3.1.1). That section includes a discussion of the wilderness experience and character.

Within the Sierra National Forest's 1.3 million acres a wide variety of recreational activities are encouraged and enjoyed. The Forest's central California location places it within an easy drive from both the San Francisco Bay Area and Los Angeles population centers, as well as the expanding Central Valley population. Known for the spectacular wildernesses of John Muir's "Range of Light", and numerous developed recreational reservoirs, the Forest is a major recreation destination.

During the recent Facilities Master Planning effort, the Sierra NF is defined as fulfilling the following niche:

The Heart of the Sierra

From lakeside camping and picnicking to wilderness solitude, the Sierra National Forest is destination recreation. With intensely used and highly developed lakes and the world famous Ansel Adams and John Muir Wilderness, the Sierra provides the extreme ends of recreation settings. These sharp contrasts provide destinations for visitors to escape from the heat and routine urban life, connect with nature, family and friends. Given the proximity to large, diverse and growing urban areas the Forest has a responsibility to provide heritage and conservation education to sustain this incredible landscape for future generations.

In 2002 the Sierra National Forest participated in the National Visitor Use Monitoring (NVUM) survey. This national data collection effort was initiated by the Forest Service in 2000 to gather statistically sound and comparable recreational data on all the National Forests across the nation. The survey will be repeated every five years on each National Forest (the next survey for the SNF is 2007). For the Sierra National Forest the survey counted 1.5 million visits[1] to the Forest which places it as the 8th most visited National Forest of the eighteen units in California (USDA Forest Service, 2003).

The surveys conducted in 2002 also help to characterize the range and diversity of activities that people engaged in while on the Forest. The following table lists the 26 most common activities and the percent of people that participated in each activity on the

[1] Visit = the entry of one person upon a national forest to participate in recreation activities for an unspecified period of time.

Sierra National Forest. The table also indicates which activity was the primary purpose for visiting the National Forest.

Table 3.7: SNF Activity Participation

Activity	Percent Participation	Percent who said it was their primary activity*
General/other- relaxing, hanging out, escaping noise and heat, etc,	49.0	18.7
Hiking or walking	39.1	10.1
Viewing natural features such as scenery, flowers, etc on national forest system lands	31.9	2.2
Other non-motorized activities (swimming, games and sports)	27.6	12.2
Picnicking and family day gatherings in developed sites (family or group)	26.8	6.8
Viewing wildlife, birds, fish, etc on national forest system lands	25.9	0.5
Camping in developed sites (family or group)	22.2	10.7
Fishing- all types	19.5	8.2
Downhill skiing or snowboarding	14.0	13.9
Driving for pleasure on roads	13.2	1.9
Motorized water travel (boats, ski sleds, etc)	8.8	5.4
Non-motorized water travel (canoe, raft, etc.)	7.9	4.4
Visiting historic and prehistoric sites/area	7.2	0.4
Resorts, cabins and other accommodations on Forest Service managed lands (private or Forest Service run)	7.0	1.2
Nature Study	6.4	0.8
Backpacking, camping in unroaded areas	5.6	2.2
Cross-country skiing, snow shoeing	5.0	4.4
Off-highway vehicle travel (4-wheelers, dirt bikes, etc)	4.5	2.2
Visiting a nature center, nature trail or visitor information services	4.5	0.0
Gathering mushrooms, berries, firewood, or other natural products	3.9	0.7
Bicycling, including mountain bikes	3.5	1.5
Primitive camping	2.8	0.3
Hunting- all types	2.0	1.6
Horseback riding	1.4	0.5
Other motorized land/air activities (plane, other)	1.0	0.2
Snowmobile travel	0.8	0.6

* This column totals over 100% because some visitors selected more than one activity.

The table above is useful in enumerating the major activities that occur on the Sierra National Forest. However, due to the broad nature of the study it does not identify visitors who used the services of a commercial pack station specifically. The category of "Horseback riding" includes both private stock users as well as visitors who used commercial services. In addition some clients of commercial pack stations may have also responded that they used "Resorts". None the less, it does place the activity of horseback riding in perspective with the other activities on the Forest.

The Sierra National Forest has numerous developed recreational facilities that enhance and expand the quantity and quality of outdoor recreation. The table below summarizes all of the developed sites on the SNF and displays the number of sites that occur within the non-wilderness AUs addressed in this section. There are no developed sites within designated wilderness.

Table 3.8: Summary of Developed Sites

Developed Recreation Site Type	Number on Forest	Number w/in AUs
Campground	56	21
Group Campground	7	3
Horse Camp*	0	0
Picnic Area	23	5
Group Picnic Area	1	0
Developed Trailhead**	7	5
Boat/Swim/Fish	7	2
Interpretative	4	1
Cabins/Lookouts	0	0
Information Site	2	0
Observation Site	6	0
Sno-Park	7	2
Snow Play	1	1
TOTAL	116	40

* There are several campgrounds that allow horses, such as Granite Creek, Kelty, Bowler and Badger, however since they are multi-use campgrounds and not only for stock users they are classified as "Campgrounds" and not "Horse Camps". The SNF does not have any horse campgrounds that are exclusively for stock users.

** Developed Trailheads have constructed features such as toilets, paved roads, corrals, etc. The SNF has many undeveloped trailheads not classified as developed sites because there are no facilities other than parking.

In the surveys conducted in 2002 visitors indicated the types of recreation facilities that they used on the Sierra National Forest. Table 3.9 displays the results. As with the data above, pack stations were not delineated as a separate category. Pack station customers could have responded to several categories such as: horseback trails, designated wilderness, and/or lodges/resorts.

Table 3.9: Percentage use of facilities and specially designated areas on Sierra NF.

Facility / Area Type	Percent who said they used (national forest visits)
Developed campground	16.5
Swimming area	22.5
Hiking, biking, or horseback trails	27.3
Scenic byway	9.3
Designated Wilderness	2.9
Visitor center, museum	3.1
Forest Service office or other info site	2.4
Picnic area	15.5
Boat launch	9.1
Designated Off Road Vehicle area	3.5
Other forest roads	17.5
Interpretive site	0.7
Organization camp	1.6
Developed fishing site/ dock	4.0
Designated snowmobile area	1.9
Downhill ski area	11.1
Nordic ski area	1.1
Lodges/Resorts on National Forest land	4.1
Fire Lookouts/Cabins Forest Service owned	1.0
Designated snow play area	10.6
Motorized developed trails	1.6

Facility / Area Type	Percent who said they used (national forest visits)
Recreation residences	2.3

3.1.2.2 Methodology

The analysis of the recreational environment outside of wilderness was based on existing data and surveys. Known information was compared against existing management direction from the Sierra LRMP. The analysis first presents an overview of recreation on the Sierra National Forest excluding the wilderness areas (recreation in the wildernesses is discussed in the Wilderness section of Chapter 3), then compares the relationship of all the non-wilderness project Analysis Units to the whole Forest. This gives a perspective on where commercial packing lies in the context of the wider view of recreation on the Forest.

Based on LRMP direction, analysis elements were selected that help to evaluate the environmental consequences of each of the alternatives for each of the AUs. This approach leads to measurable and comparable evaluations for each of the AUs.

Analysis Elements

The Sierra National Forest LRMP suggests two elements that can be used to analyze the effects of an action on recreation. The Forestwide Goals and Objectives state *"Provide a broad spectrum of dispersed and developed recreational opportunities in accord with identified needs and demands and meet ROS [Recreation Opportunity Spectrum] class objectives shown on ROS element maps"* (pg. 4-1). Therefore the alternatives will be measured against the following two analysis elements:

1. **Range of recreational opportunities** – Does the proposal contribute to a "broad spectrum" of recreational opportunities on the Sierra National Forest? Are there certain groups of people that will not be served?
2. **Experiential Setting** – Does the proposal conform to the ROS class and LRMP Management Area guidelines for the area?

The first analysis element is fairly easy to evaluate. A proposal adds, maintains or subtracts from the range of recreational opportunities on the Sierra National Forest. Opportunities are varied but include a list comparable to Table 3.7 above.

Recreational Opportunity Spectrum (ROS)

The second analysis element above needs some explanation. The concept of ROS offers a framework for understanding, planning and setting standards related to the recreational relationships and interactions people have while visiting the National Forest. Research has shown that people choose a specific setting for each recreational activity in order to realize a desired set of experiences (USDA Forest Service, 1990). The ROS classes that define appropriate recreational settings on the Sierra National Forest (LRMP, 1991) are:

- **Urban (U)** - Paved roads; highly modified natural environments; convenient recreation facilities; many non-recreational developments; facilities such as parking lots for intensive motor vehicle use; extensive management; large numbers of visitors.
- **Rural (R)** - Less development than urban but still heavily built up; paved or gravel all-weather roads; extensive management; modern facilities such as developed campgrounds; moderate amount of natural vegetation; moderate to high numbers of visitors.
- **Roaded Natural (RN)** - Paved or gravel all-weather roads with limited development; moderate management presence, moderate to high level of naturalness; rustic facilities such as developed campgrounds; moderate number of visitors.
- **Semi-Primitive Motorized (SPM)** - Gravel or dirt roads and trails; subtle and limited management presence; undeveloped campgrounds; predominately natural environments; low number of visitors; infrequent evidence of human activity.
- **Semi-Primitive Non-Motorized (SPNM)** - Trail access only; subtle and limited management presence; scattered undeveloped campgrounds; predominately natural environments; low number of people; infrequent evidence of human activity.
- **Primitive (P)** - Cross-country or trail access; low to no management presence and maintenance of primitive attributes free of human improvements; unmodified natural environment; minimal numbers of visitors; usually in designated wilderness or areas with low capacity for recreation because of rough terrain, lack of water and absence of facilities.

The LRMP allocates the Forest into one of these six classes. This then defines the variety of the recreational experience that visitors should have in different settings across the Forest. Each ROS class is defined by "setting indicators" which include access, remoteness, naturalness, facilities and site management, social encounters, visitor impacts and visitor management. For each of these setting indicators a set of conditions that define the level of compatibility have been developed. The purpose of assigning a ROS class to areas of the Forest is to ensure that a full range of settings is available and that over time incremental changes do not alter the allocations prescribed in the LRMP. In this analysis the compatibility of the proposal with the ROS in each Analysis Unit will be evaluated.

LRMP Management Areas

The Sierra National Forest LRMP allocates the forest into twelve management areas; each with a different set of emphasis items. In this analysis the project area outside the wilderness falls into one of five Management Areas. Briefly described they are:

- **#1 – Developed Recreation**: Land and water areas where developed recreation opportunities such as public campground picnic areas, visitor information center, vistas, resorts, organization camps and recreation residences are emphasized.
- **#2 – Dispersed Recreation**: Land and water areas where dispersed recreation opportunities, primarily a semi-primitive setting are emphasized.

- **#4 – General Forest**: Lands generally available, capable and suitable for timber production. Resource considerations such as watershed, wildlife, visuals, and cultural activities often place constraints on timber management activities.
- **#9 - Special Interest Area**: lands designated to protect and mange unique geological, historical, archeological, botanical and memorial features.
- **#11 – Dispersed Recreation – No Timber Harvest**: Land and water areas where dispersed recreation opportunities, primarily a semi-primitive setting are emphasized. No timber harvesting activities are allowed, unless due to catastrophic events.

As with the ROS classification these guidelines set the framework for managing the Forest as a whole. Compliance with the guidelines means the project is compatible with the goals and objectives of the LRMP and fits into the overall scheme for managing the Forest.

3.1.2.3 Overview – Common to All

Affected Environment

The table below displays the breakdown by area of LRMP Management Areas and ROS classifications for each AU.

Table 3.10: Summary of Analysis Unit Recreation Classification Data

AU	Total Acres	LRMP Management Areas	Acres	ROS	Acres
Nelder	33,990	1	1,232	R	823
		2	0	RN	24,117
		4	24,146	SPM	1,991
		9	1,388	SPNM	32
		11	7,224	P	7,027
Clover	27,191	1	0	R	0
		2	10,531	RN	23,374
		4	16,660	SPM	0
		9	0	SPNM	3,709
		11	0	P	108
Edison	4,888	1	4,556	R	0
		2	0	RN	2,889
		4	0	SPM	1,946
		9	0	SPNM	40
		11	332	P	13
Chinquapin	3,238	1	1,520	R	0
		2	0	RN	3,088
		4	0	SPM	0
		9	0	SPNM	151
		11	1,718	P	0

AU	Total Acres	LRMP Management Areas	Acres	ROS	Acres
		1	2,372	R	0
		2	0	RN	1,349
Florence	2,382	4	0	SPM	1,008
		9	0	SPNM	25
		11	11	P	0
		1	4,530	R	3,779
		2	0	RN	5,334
East Huntington	9,154	4	0	SPM	0
		9	0	SPNM	41
		11	4,624	P	0
		1	1,620	R	1,341
		2	0	RN	168
West Huntington	1,748	4	129	SPM	0
		9	0	SPNM	239
		11	0	P	0
		1	0	R	1,602
		2	0	RN	508
Dinkey FC	2,110	4	2,110	SPM	0
		9	0	SPNM	0
		11	0	P	0
		1	0	R	11
		2	0	RN	0
Tule Mdw	11	4	11	SPM	0
		9	0	SPNM	0
		11	0	P	0
		1	2	R	6
		2	0	RN	0
Wishon	6	4	4	SPM	0
		9	0	SPNM	0
		11	0	P	0
		1	15,832	R	7,562
		2	10,531	RN	60,805
Total	84,718	4	43,060	SPM	4,945
		9	1,388	SPNM	4,237
		11	13,909	P	7,148

The following table summarizes the LRMP Management Areas that are included in this project and the acreage of each. Six of the twelve management areas have some pack station use and/or facilities. Management Area #3 is wilderness and is covered in section 3.1.1 Wilderness. The remaining five Management Areas that are involved in this project are non-wilderness. This table shows that outside of wilderness the pack station operations influence no more than 30% of any of the subject Management Areas. Approximately 40% (254,669 acres) of the non-wilderness portions of the Sierra National Forest has no pack station operations at all. Of course these are gross acres figures based on the total size of the AUs and every acre within the AUs is not affected by the pack

stations, therefore the actual acres of direct impact are much less. However, this comparison does give a generalized characterization.

Table 3.11: LRMP Management Areas Comparison

LRMP Management Area	Forest Total Acres[1]	Project Area Acres	Project % of Area
1	179,126	15,283	9
2	36,382	10,531	29
3	543,458	543,458	100
4	531,305	43,060	8
9	5,623	1,388	25
11	83,870	24,440	29
5, 6, 7, 8, 10, 12	254,669	0	0

The following table is a similar summary, but displays the total acres of the AUs compared to the Forest total for each ROS class outside of the wilderness. As the table shows, about 72% of the non-wilderness pack station operations are in the Roaded Natural ROS class. The table also reveals that no more than 17% of any of the ROS classes is influenced by the pack station operations.

Table 3.12: ROS Class Area Comparison

ROS	Forest Non-Wilderness Total Acres[2]	Non-Wilderness Project Area	% of Non-Wilderness Forest Total	% of Non-Wilderness Project Area
R	124,800	7,562	6	9
RN	584,700	60,805	10	72
SPM	60,800	4,945	8	6
SPNM	40,800	4,237	10	5
P	42,600	7,148	17	8

Environmental Consequences

The section below summarizes the effects on a Forest scale. Site specific effects are disclosed in the section that follows, describing each of the non-wilderness AUs individually.

Alternative 1

Direct Effects

[1] Source: LRMP Table 4.6 pg. 4-33
[2] Source: LRMP Table G.04, pg. 7G-2

Alternative 1 would not permit commercial pack stock operations and facilities would be removed. Clearly there would be a segment of the recreating public that would no longer be served and the range of recreational opportunities on the Sierra National Forest would be reduced. Approximately 15,500 people or about 1% of the total number of people that use the Sierra National Forest would no longer be able to experience some form of stock related recreation (see Table 3.22) Those people who hire commercial pack stock to access remote areas of the Forest would be denied the opportunity to experience stock supported trips. They would either have to hike to access the same areas or would be displaced to other areas in the Sierra Nevada where such services continue. The experience of riding a horse, observing pack stock operations and stock related services such as sleigh and wagon rides would not be available on the SNF.

In addition, a very specific segment of the population that require pack stock to support their trips because of physical and/or age limitations would no longer be able to enjoy the backcountry and wildernesses. Based on surveys in the Ansel Adams and John Muir this group may account for up to 90% of pack station clients who take overnight trips into the wilderness (USDA Forest Service, 2005). Due to physical limitations this group does not have the option to hike into the wilderness and backcounty settings, consequently the recreational opportunity would be totally lost to approximately 1,400 people annually on the Sierra National Forest who participate in overnight trips into the backcountry (see Table 3.22). There is no data on how many physically challenged people participate in day rides and would no longer be able to experience a non-motorized trail trip.

The diversity and experience of other recreation activities that do not depend on pack stock such as off road and over snow travel, camping, hiking, etc. would not be affected if the pack station facilities were removed. The pack stations do not occupy sites that are highly desirable for any other recreational activities and are not displacing other recreationsists. At most, some sporadic dispersed camping may occur on the sites, but there are no attractant factors such as lakes, streams or scenic vistas. Outside of the wilderness there are no persistent documented user conflicts that would be alleviated by the removal of the pack stations.

Since all of the facilities and activities are currently fully compatible with the ROS guidelines, their removal would offer no net effect on the ROS classes. The areas that they occupy would continue to be compliant without any facilities. The absence of the pack stations would be compatible with the LRMP Management Area direction since this direction does not stipulate that the pack stock experience is required in any of the Management Areas.

Indirect Effects

The commercial pack stations provide a link to our past both for clients and forest visitors who merely observe pack strings and stock. Their removal would diminish the traditional and historical context of pack stock in the backcountry and wilderness areas of this portion of the Sierra Nevada. As the population continues to urbanize this important connection to our historical western roots would be diminished on the SNF. While private stock would still be present, it would not have nearly the same exposure and

access to the public as commercial pack operations do. There is no estimate of the number of people who visit the pack stations merely to observe the horses and activities, and this activity usually is incidental to the primary reason for visiting the Forest, but removal of the pack stations will decrease the availability of this opportunity to visitors.

Commercial guides including the pack stations have the opportunity to provide a valuable extension of Forest Service policy in the areas of interpretation of the natural world, education on appropriate camping techniques, and providing basic information to tourists. By removing the pack stations these opportunities would be lost.

A specific indirect effect would be on the other outfitters and guides, similar organizations (such as the Sierra Club), and Native Americans who lead trips on the National Forest. Many of these groups rely on pack stock to support their trips. Consequently their ability to serve the public would be restricted to only non-pack stock supported activities thus reducing the recreational spectrum and participation in their sponsored activities.

Currently the Forest Service depends on commercial pack stock to support trail maintenance and wilderness management projects. By and large these projects are now carried out by volunteer groups such as the High Sierra Volunteer Trail Crew, a non-profit organization focused on trail and other projects on the Sierra National Forest. While the Forest Service still maintains a herd of working pack stock, the number of animals has been significantly reduced over the past several decades. If commercial pack stock were not available at an economically efficient price, many of the trail maintenance and wilderness management projects would not occur or would be reduced in scope. The quality of the trail system in turn affects the experience of all users in the backcountry and wilderness areas. In addition many of the volunteers consider the trail work and sense of accomplishment as a recreational if not slightly spiritual experience. Loss of the pack stations to provide logistical support could decrease the ability of the Forest Service to provide this kind of recreational experience.

There would be no indirect effects related to compliance with the ROS class or LRMP Management Area guidelines.

Cumulative Effects

There are no past, present or foreseeable future actions that will affect the range and diversity of recreational activities on the Sierra National Forest, or that would add to the direct and indirect effects of this proposal to remove the pack stations and result in loss of more activities on a forest-wide scale. There are numerous other recreational special use permits on the SNF for uses and activities such as outfitter/guiding, skiing, white water rafting, fishing, rock climbing, resorts, organizational camps, recreation residences, etc. While individual permits may be eliminated and/or added in the future, and services may not be available in all areas of the forest, there is no management direction to remove any particular use or activity from the Forest as a whole.

In the Huntington Lake, Edison Lake and Florence Lake areas there is final planning occurring to re-issue FERC licenses for the Southern California Edison hydro electric operations related to these reservoirs. Significant upgrades to the recreational infrastructure are likely to occur as a result of the re-licensing process. However, none of these will affect the recreational character of these landscapes in a way that will be not compliant with the ROS and LRMP Management Areas. These areas are in Rural and Roaded Natural ROS classifications. The type and development scale of the facilities as they are now being planned is fully compatible with these ROS classes. Consequently there are no cumulative effects on a forest-wide scale.

All predictions would indicate that the demand for recreation will increase in California. However as described above, the pack stations do not occupy sites where there is a demand from some competing recreational activity. They are not displacing any other use or activity. Therefore their removal does not open any opportunity that does not already exist.

Alternatives 2 and 3

Direct Effects

The environmental consequences of implementing Alternatives 2 and 3 are the same for both the variety of recreational activities and experiences in all the non-wilderness AUs. The differences between Alternative 2 and 3 are primarily in the wildernesses. These differences in the wildernesses do not appreciably affect the areas outside wilderness covered in this section.

Alternatives 2 and 3 would permit the commercial pack stations to offer a range of activities and recreational opportunities. The effect of these alternatives is the converse of Alternative 1. All the services and recreational experiences lost in Alternative 1 would be available to the public in Alternatives 2 and 3. The current range of recreational opportunities would be retained. Those people who require the assistance of pack stock due to physical and/or age issues would be able to access the wilderness and backcountry areas of the Forest.

The diversity and experience of other recreation activities that do not depend on pack stock such as off road and over snow travel, camping, hiking, etc. would not be affected if the pack stations continue to operate. The pack stations do not occupy sites that are desirable for any other recreational activities and are not displacing other recreationsists. Outside of the wilderness there are no persistent documented user conflicts that are disrupting the enjoyment of the Forest by people in the pursuit of other recreational activities.

The pack station facilities and activities are fully compatible with the ROS guidelines for the areas in which they occur. Overall, the buildings and support facilities are rustic and not obtrusive on the landscape. Many of the facilities are in Rural and Roaded Natural settings that allow development for site protection and user comfort. As displayed in Table 3.11 the area that the pack station operations could influence is minimal when compared to the non-wilderness portion of the Forest as a whole.

The pack station operations as proposed are also fully compliant with the LRMP Management Area guidelines.

Indirect Effects
The consequences of Alternatives 2 and 3 would be the converse of Alternative 1. The traditional and historical uses in these areas could be preserved and the experiences and knowledge people gain from observing and using pack stock related services could continue.

The opportunity for pack stock operators to be recreation service partners with the Forest Service and provide interpretive, educational and informational benefits to the public would be available. At least one of the pack station owners is a "Leave No Trace Master" and the Wilderness Education Project has produced a training video specifically aimed at pack station employees. These efforts recognize the increasing role of the pack stock operators in educating the public.

Other outfitter and guides and service organizations would be able to enhance their programs with pack stock supported trips.

The Forest Service would have available the ready support of pack stock to accomplish trail maintenance and wilderness management projects, which would result in benefits to many recreational users.

Cumulative Effects
As described in the cumulative effects for Alternative 1 there are no past, present or foreseeable future actions on the Sierra National Forest that would alter the availability of recreational activities on the forest-wide scale. No current actions or future planning would eliminate or add whole classes of recreational pursuits. While individual special use permits and/or sites may be removed or added for a variety of reasons, the recreation activity categories they support would not be totally lost on the forest.

As described above, the pack stations are not displacing any other use or activity, as most are remotely located in sites not subject to demand from other recreational pursuits. Therefore their presence on the landscape does not preclude or eliminate any other activity on the Forest.

3.1.2.4 Analysis Unit Level Evaluation

NELDER (NED)

Affected Environment

All YTPS facilities and operations are within the NED AU. Only trips that enter Yosemite National Park are outside of the AU. MPS uses a small portion of the AU on the Chiquito Pass Trail also to access Yosemite National Park.

Developed recreation sites within the AU include:

- Goat Mdw Snowplay Area
- Nelder Interpretive Site
- Nelder Campground (7 sites)
- Kelty Meadow Campground (11 sites)
- Big Sandy Campground (18 sites)
- Fresno Dome Campground (15 sites)

There are also two designated OHV routes: Star Lakes and Iron Lakes. The Quartz Mountain and ChiquitoTrailheads are located in the northeast part of the AU and provide access to Yosemite National Park over Chiquito Pass.

The western boundary of the AU is State Highway 41, which is the second most traveled entrance to Yosemite National Park. However, the majority of park-bound visitors travel directly to the Park, and do not stop in the National Forest. Along this section of Hwy. 41 there are several tourist attractions and facilities in addition to YTPS, including the Yosemite Sugar Pine Railroad, Narrow Gauge Inn, Apple Tree Inn and Tenaya Lodge all in the vicinity of the community of Fish Camp. The largest of these establishments is Tenaya Lodge with 244 luxury rooms and suites, and high-end amenities located within one mile of the Park boundary. While the clientele is largely focused on Yosemite National Park a notable amount of recreation use is generated from the Lodge in the form of hiking, horseback riding, mountain biking, and sightseeing. The Tenaya Lodge holds an Outfitter/Guide SUP for conducting nature walks and mountain bike tours within the NED AU. They also rent mountain bikes.

YTPS is located approximately ½ mile from Hwy 41 on a graveled road. Much of their customer base is associated with Yosemite NP bound tourists who are looking for unique activities such as horseback riding to add to their visit to the Park. Many tourists find the Park to crowded and expensive and are looking for activities beyond the Park boundaries. For this reason the majority of YTPS business is day rides, or related short duration activities such as winter sleigh rides, hay rides, western style dinners, etc.

Another distinctive feature within the NED AU is a three mile section of the Merced Wild and Scenic River (MWSR). This section of the river has been classified as a "Wild Zone" in the MWSR Plan (USDA Forest Service, 1991). The MWSR was established by Congress in 1987 under the Wild and Scenic Rivers Act (P.L. 90-542). Objectives for the "Wild Zone" designation include: "Manage and maintain the ROS class of Primitive" and "Manage the zone for the use and enjoyment of visitor in a way that will leave the areas unimpaired for future use and enjoyment". YTPS takes overnight trips into the MWSR primarily for anglers to fish the South Fork of the Merced River. This section of the river is only lightly visited by the public due to the difficult steep terrain and limited access.

The Nelder Grove of Giant Sequoias is also within the NED AU. It is officially designated by the Sierra National Forest as the Nelder Grove Historic Area. Within this special management area are two interpretive trails, one of which, the Shadow of the Giants, is classified as a National Recreation Trail. YTPS takes day rides into Nelder

Grove. These trips combined with the half day rides into Yosemite National Park's Mariposa Grove of Sequoias provide a unique experience not found outside of central California.

Away from the Hwy 41 corridor the general character of the AU is rustic with 71% of the AU classified as Roaded Natural. The YTPS headquarters is within a Roaded Natural ROS and a Management Area #1-Developed Recreation classified area. There is an extensive, but primitive road system that dates back to the 1930's when the area was heavily railroad logged. The campgrounds in the AU are not highly developed and have features such as vault toilets and rustic picnic tables. None have amenities such as running water, or pavement. Common recreational activities within the AU include camping, fishing, off highway vehicle travel, mountain biking, private horseback riding and hiking. Kelty Meadow Campground is open to equestrians and is the only developed site that allows horses in the AU (one of only three on the Bass Lake Ranger District). Snowplay is popular at the Goat Meadow Snow Play Area when snow is adequate at the 5,000 foot elevation.

A network of use trails lead out from the YTPS headquarters to provide a variety of day riding opportunities for approximately 10,000 visitors annually (see Table 3.22 for use data). For many of the clients, horseback riding is a novel and unique recreational experience. For example, a typical tourist may tour Yosemite by bus, take an excursion on a steam train, and ride a horse all while staying at the Tenaya Lodge or one of the motels in Oakhurst (approximately 15 miles south). YTPS also offers a variety of opportunities not offered anywhere on the Sierra National Forest that reflect the "tourist" emphasis of its National Park gateway location. These include, wagon rides, winter sleigh rides, BBQs, breakfast rides, family camps, equestrian camps, pony rides and a livestock petting zoo.

Environmental Consequences

Alternative 1

Direct Effects

Annually approximately 10,000 day use clients and 200 overnight clients would no longer have a horse and pack stock opportunity in this AU. YTPS offers a wide variety of activities related to the tourist type of clientele in the Fish Camp area, such as hay and sleigh rides, that are available no where else on the Sierra National Forest. These would no longer be available. The removal of the pack station would result in a notable loss in the available range of recreational opportunities within the NED AU eliminating all commercially available stock based activities.

There would be no effect on the experiential setting if the pack station were removed. The current facilities are fully compliant with the ROS and LRMP Management guidelines, and the removal of the facilities would not alter the landscape in a way that would offer any substantial improvement. The pack station facilities are not visible from the Hwy 41 corridor so there would not be an improvement in the viewshed from the highway or a remedy to a non-conforming use.

Indirect Effects
Due to its proximity and role in the tourist oriented activities in and around Fish Camp, it is not uncommon for families to visit YTPS simply to observe the horses and activities. These people are not clients of the pack station but are receiving an enhancement to their recreational experience. If the pack station is removed this indirect benefit will be lost.

Cumulative Effects
None specific to this AU, see overview.

Alternatives 2 and 3

Direct Effects
The pack station would provide stock based services including all the tourist oriented activities such as wagon rides and winter sleigh rides. The range and diversity of recreation opportunities would be preserved within this AU.

The proposed facilities are fully compliant with the ROS and LRMP Guidelines, and due to the remote location, out of sight by most visitors, and character of the landscape the retention of the facilities would not alter the landscape in a way that degrades the viewshed so that it does not comply with the guidelines.

Allowing YTPS to construct a new headquarters that includes a handicapped accessible ticket sales center (Mile High HQ) near Tenaya Lodge that is within ¼ mile of Highway 41, would allow easier access to this recreational opportunity for the public, especially physically challenged customers.

Both Alternatives 2 and 3 add direction for management of one designated stock campsite located in the MWSR corridor and six other campsites within the NED AU. Eight campsites are prohibited from use by commercial pack stock. Alternative 3 would further add specific protections in the MWSR by prescribing destination quotas. Alternative 2 does not have any specific use limits in the MWSR. Taken together, these management changes do not affect the range or diversity of recreational activities.

Indirect Effects
Forest visitors who are not clients but enjoy observing horses and the pack station operations would be able to have this recreational experience enhancement.

Cumulative Effects
None specific to this AU, see overview.

CLOVER (CLO)

Affected Environment

The MPS headquarters is located within the CLO AU.

MPS is a major recreational feature in the AU, located ¼ mile from the Sierra Vista National Forest Scenic Byway on a dirt road. It is not visible from the Byway. The

facilities are rustic and fit well with the surrounding landscape. MPS offers basic grocery items and camping supplies and in the past has offered meals at their facility. They have about 15 rustic campsites available on site for use by both clients and the general public. These services make it a destination for general forest visitors in addition to the packing service clientele. As a central feature to visitor services in the AU, and even thought there is a phone at Clover Station, many people utilize the telephone at the pack station in times of emergency. There are no other similar resorts in the vicinity and no user conflicts associated with the pack station in this AU.

In addition to the headquarters, MPS passes through the AU via several trails and roads on the way to the Ansel Adams Wilderness for both overnight trips and day rides. Day rides that are less than an hour in duration stay within the CLO AU.

Other developed sites within the AU include:

- Bowler Group Campground (12 sites)
- Clover Meadow Campground (7 sites)
- Granite Creek Campground (20 sites)
- Clover Meadow Station Administrative Site

The AU also includes most of the major trailheads that enter the Ansel Adams Wilderness.

Trailheads in this AU include:

- Jackass Lakes
- Norris
- Fernandez
- Isberg
- Mammoth.

The Sierra Vista National Scenic Byway bisects the AU on the Minarets Road (FR 81) and the Beasore Road (FR 7). Clover Station is the primary point of contact for issuing Wilderness Permits for the western portion of the Ansel Adams Wilderness. It is staffed during the summer and also serves as a base of operations for Forest Service Wilderness Rangers, trail workers and Forest Service administered pack stock support.

As shown in Table 3.10 above, the AU is primarily classified as the Roaded Natural (23,374 acres), with lesser amounts of Semi-Primitive Non-motorized (3,709 acres), and Primitive classes (108 acres). The pack station facilities are located within a Roaded Natural classified area. The LRMP Management Areas for the AU are split between #4–General Forest and #2–Dispersed Recreation. All of the pack station facilities are within Management Area #4.

The AU has a dispersed recreation and rustic character typified by an "end-of-the-road" experience. The developed facilities are very rustic with primitive features such as vault toilets and no running water. Typical activities include off highway travel, mountain biking, dispersed camping, hunting, fishing, hiking and horseback riding. Both Bowler

and Granite Creek Campgrounds have rudimentary facilities for horses, and are two of only three developed campgrounds on the Bass Lake Ranger District that allow horses. (As noted above, since these campgrounds are multi-use they are not classified as "Horse Camps", but are included with all campgrounds.)

Environmental Consequences

Alternative 1

Direct Effects

The removal of the pack station from the CLO AU would result in the loss of a major recreation opportunity in the AU. In addition to the loss of packing services and the opportunities and experiences that accompany that activity, the other amenities offered, such as camping and food supplies would no longer be available anywhere near this area. The loss of the campground associated with the pack station would also result in a substantial loss of opportunity as it contributes about ¼ of the developed camping sites in the AU. A point of contact and phone for emergencies would be eliminated, leaving only the Clover Meadow Station.

The current facilities are fully compliant with the ROS and LRMP Guidelines, and due to the remote location, out of sight to most visitors, and character of the landscape the removal of the facilities would not alter the landscape in a way that would offer any visual improvement or remedy a non-conforming use.

Indirect and Cumulative Effects

None specific to this AU, see overview.

Alternatives 2 and 3

Direct Effects

There is no difference between the alternatives in this AU because destination management is not applied to this AU. There would be no difference between Alternatives 2 and 3 for recreational resources in the CLO AU. The pack station would provide pack stock services, and amenities at the headquarters. This would retain the range of opportunities for this AU. The campground would contribute about ¼ of the developed overnight campsites within the AU.

The proposed facilities are fully compliant with the ROS and LRMP Guidelines, and due to the remote location, out of sight by most visitors, and character of the landscape the retention of the facilities would not alter the landscape in a way that degrades the viewshed so that it does not comply with the guidelines.

Indirect and Cumulative Effects

None specific to this AU, see overview.

EDISON (EDI)

Affected Environment

The High Sierra Pack Station headquarters and D&F Pack Station spike station are located within the Edison AU.

High Sierra Pack Station is located ¼ mile from Vermilion Valley Resort and Vermilion Campground adjacent to Edison Lake. The facilities are rustic in nature and fit well within the surrounding landscape. They are the only business in the area that offers horseback day rides. They also provide overnight pack supported trips.

HSPS trips pass through the EDI AU on the way to the John Muir and Ansel Adams Wildernesses for both overnight trips and day rides. HSPS also has provided support services for the Mono Nation Annual Walk and volunteer trail work opportunities (e. g. Sierra Club Service Trips and the High Sierra Volunteer Trail Crew).

D&F spike station is located approximately 3/4 mile from the developed recreation areas of Edison Lake and Vermilion Valley resort on a dirt road. It occupies approximately 0.3 acres, and the rustic facilities are nominal consisting of a pack deck, corrals, hitch rack, and stock water system. This facility serves as a meeting point for clients prior to departing on a trip into the John Muir and Ansel Adams Wildernesses. The services provided at the spike station are minimal and do not conflict with the services offered by the HSPS.
Starting at the spike station D&F passes through the EDI AU on the way to the John Muir and Ansel Adams Wildernesses for overnight trips.

As shown in Table 3.10 above, the AU is primarily classified in the Roaded Natural (2889 acres) and Semi-Primitive Motorized (1,946 acres), with lesser amounts of Semi-Primitive Non-motorized, and Primitive classes. The HSPS main pack station facilities and the D&F Pack Station Spike Station are located within a Roaded Natural classified area, and LRMP Management Area #1-Developed Recreation.

Other developed recreation sites within the AU include:

- Vermilion Campground (31 sites)
- Edison Boat Ramp
- Mono Creek Campground (14 sites)
- Mono Creek Picnic (5 sites)

Trailheads in this AU include the following:

- Bear Creek (developed)
- Mono Creek (campsite, restrooms, parking, and corral facilities for public use)
- Onion Springs

Vermilion Valley Resort operates under a special use permit in the EDI AU. The services they provide include a store, restaurant, hotel, tent platforms, fishing boat

rentals, and ferry boat service on Edison Lake. The services offered by Vermilion Valley Resort do not overlap with the pack stations.

There is one designated jeep trail (Onion Springs OHV Route) within this AU. It is an easy route according to challenge levels, approximately 5 miles long and is utilized primarily for day rides as it accesses no specific destination. It ends at the Onion Springs Trailhead.

Typical recreational activities in the EDI AU include off highway travel, camping, hunting, fishing, hiking, backpacking, and horseback riding. The major attractant for the public is Thomas A. Edison Lake, also known as Edison lake. At 7,650 feet in elevation, Edison Lake is ringed with dispersed and developed campgrounds, and offers superb fishing and scenic beauty. The Vermilion Valley Resort offers ferry boat service to the far northeast end of the lake for access in the vast John Muir Wilderness which attracts an international clientele. Wilderness visitors also utilize the resort for restocking supplies on longer backpacking trips or to enjoy a hot meal and possible overnight stay before moving on or leaving the area. The resort compliments the services of the pack stations by advertising day rides and overnight trips.

Environmental Consequences

Alternative 1

Direct Effects

The removal of the HSPS headquarters and D&F spike station from the EDI AU would result in the total loss of the commercial stock related recreation opportunity in this AU.

The current facilities are fully compliant with the ROS and LRMP Guidelines, and due to the remote location, out of sight by most visitors, and character of the landscape, the removal of the facilities would not alter the landscape in a way that would offer any visual improvement or remedy a non-conforming use.

Indirect and Cumulative Effects

None specific to this AU, see overview.

Alternative 2

Direct Effects

The pack stations would provide stock based services. The range and diversity of recreation opportunities would be preserved in this AU.

The current facilities are fully compliant with the ROS and LRMP Guidelines, and due to the remote location, out of sight by most visitors, and character of the landscape the retention of the facilities would not alter the landscape in a way that degrades the viewshed in a way that does not comply with the guidelines.

Indirect and Cumulative Effects

None specific to this AU, see overview.

Alternative 3

Direct Effects

Implementation of destination management in the Dinkey Lakes and Kaiser Wildernesses would have no identifiable effect on the recreational experience in the EDI AU.

Indirect and Cumulative Effects

None specific to this AU, see overview.

CHINQUAPIN (CHQ)

Affected Environment

No pack station facilities are located within the Chinquapin AU. As shown in Table 3.10 above, the AU is primarily classified in the Roaded Natural (3088 acres) with a small amount in the Semi-Primitive Non-Motorized (151 acres). The AU is bisected by the Kaiser Pass Road which provides the only access to Edison and Florence Lakes.

HSPS and MTR use a portion of the Kaiser Pass Road within this AU for stock drives in order to get stock to their facilities located at Thomas A. Edison Lake and Florence Lake for ½ day at the beginning of the season and the end of the season. No clients are served in this AU.

Developed recreation sites within the AU include:

- Mono Hot Springs Campground (26 sites)
- Bolsillo Campground (3 sites)

The High Sierra Ranger Station is located in this AU and is operated by the Forest Service. It is staffed by volunteers and is one of the locations for obtaining wilderness permits for entry into the John Muir and Ansel Adams Wildernesses and visitor information.

Mono Hot Springs Resort is privately operated under a special use permit on National Forest System lands. Resort services include a store, restaurant, rental cabins, tent platforms, and bath house. None of these services duplicate pack station operations in the AU.

The Doris/Tule trailhead accessing the Ansel Adams wilderness is located within the AU.

There is one designated jeep trail (Bear Diversion OHV Route) within this AU. It is an easy route according to challenge levels, approximately two miles long and takes approximately one hour from start to finish. It ends at the Bear Diversion Dam where overnight camping is permitted.

Due to the location of this AU, the majority of visitors coming to this area are seeking a recreational experience that is less developed and more dispersed. The activities that they seek are usually fishing, day hiking, backpacking and camping. The Mono Hot Springs

resort offers a variety of amenities such as a bath house and rental cabins for those who want more facilities than nearby campgrounds.

Environmental Consequences

Alternatives 1, 2 and 3

Direct, Indirect, and Cumulative Effects

Since there are no pack station facilities and no clients are served in this AU there is no effect to the range and diversity of recreational opportunities and no effect on the ROS compliance.

FLORENCE (FLO)

Affected Environment

HSPS operates a spike station within this AU. The station consists of a landing dock, corrals, shower house, office and living quarters and is located near the north end of Florence Lake. The facilities are rustic in nature fitting in with the surrounding landscape. This facility is used for staging their animals prior to departure and upon return from pack trips to various locations in the John Muir Wilderness or through the John Muir Wilderness into Kings Canyon National Park.

The LVPS headquarters is located on the southeast corner of Florence Lake. It consists of an A-frame cabin, storage shed, corral and stock water tank. All other facilities are on their private property located at Blayney Meadow. LVPS does not offer any services within this AU other than to transport clients back and forth to their ranch on private property at Blayney Meadow.

MTR utilizes portions of the Florence AU for their annual stock drive. This includes the Kaiser Pass Road from the High Sierra Ranger District Administrative Site to Florence Lake. MTR does not offer any services within this AU other than to transport clients back and forth to their ranch on private property at Blayney Meadow.

Florence Lake Resort consists of a store, ferry boat service, and fishing boat rentals. The store provides basic food and camping supplies. The ferry boat service is available for a fee to transport hikers to the southeast end of Florence Lake saving approximately five miles of hiking, where they begin their journey into the John Muir Wilderness and/or Kings Canyon National Park.

As shown in Table 3.10 above, the AU is primarily classified in the Roaded Natural (1,349 acres) and Semi-Primitive Motorized (1,008 acres), with lesser amounts of Semi-Primitive Non-motorized (25). The High Sierra spike station and the Florence Lake Resort are located within the Roaded Natural classified area. LVPS is located within the Semi-Primitive Motorized. All of the facilities in the AU are within the LRMP Management Area #1-Developed Recreation.

Other developed recreation sites within the AU include:

- Ward Lake Campground (17 sites)
- Jackass Meadow Campground (44 sites)

- Florence Lake Picnic Area (17 sites)

There are also dispersed campsites at various locations along the lake.

The only developed trailhead is Florence.

There is one designated jeep trail (Hooper Diversion OHV Route) within this AU. It is an easy route according to challenge levels, approximately 2 1/2 miles long, and takes approximately two hours from beginning to end. Recreationists utilize this access primarily to overnight camp and fish.

Recreational activities in this AU include camping, hunting, fishing, and hiking. Due to the undeveloped character this AU provides a unique opportunity for recreationists that are seeking an experience that provides more solitude, as well as a place to escape the noise and heat of the valley.

Many visitors camp in the Jackass Meadow Campground while others take the ferry boat to more isolated dispersed campsite locations around the lake that you cannot drive to. This area also attracts a large number of hikers who take the ferry boat service to the other side of the lake to begin their hikes into the John Muir Wilderness and in some cases on to Kings Canyon National Park. Because of the popularity of both the John Muir Wilderness and Kings Canyon National Park this is visited by international clientele.

Environmental Consequences

Alternative 1

Direct Effects

The removal of the HSPS spike station and Lost Valley Station from the FLO AU would result in total the loss of the commercial stock related recreation opportunity.

Removal of the Florence Lake Resort would result in a loss of services to the recreating public. In this remote area, the public has come to rely on these services which include food supplies and fishing boat rentals. This would impact campers in the Jackass Meadow campground, dispersed campers, and day users. Wilderness hikers and users of the private facilities in Blayney Meadow would not have the services of the ferry boat which transports persons as well as supplies to the southeast end of Florence Lake.

Ultimately this means an additional five mile hike one way. Removal of the ferry boat service would increase the use along the 27E81 trail that goes around Florence Lake significantly raising the number of visitor encounters and congestion.

The current facilities are fully compliant with the ROS and LRMP Guidelines, and the removal of the facilities would not alter the landscape in a way that would offer any substantial improvement.

Indirect Effects

Removal of the Florence Lake Resort facilities would potentially result in an opening of an estimated four to five dispersed camping opportunities in areas currently occupied by the facilities.

Cumulative Effects
None specific to this AU, see overview.

Alternative 2

Direct Effects
The pack stations would provide stock based services. The range and diversity of recreation opportunities would be preserved in this AU.

The current facilities are fully compliant with the ROS and LRMP Guidelines. Consequently the retention of the facilities would not alter the landscape in a way that would offer any visual improvement or remedy a non conforming use.

Indirect and Cumulative Effects
None specific to this AU, see overview.

Alternative 3

Direct Effects
Implementation of destination management in the Dinkey Lakes and Kaiser Wildernesses would have no identifiable effect on the recreational experience in the FLO AU.

Indirect and Cumulative Effects
None specific to this AU, see overview.

EAST HUNTINGTON (HNE)

Affected Environment

The D&F headquarters and a D&F spike station are located within the HNE AU. The D&F headquarters is located ¼ mile from Deer Creek Campground and Lakeshore Resort. The facilities fit well within the surrounding landscape. They are the only business in the area that offers horseback riding for recreationists in the way of day rides. They offer day rides along Huntington Lake as well as into the wilderness. They also provide overnight pack supported trips.

The D&F Spike Station, located off the Kaiser Pass Road, is used to service destinations within the Dinkey Lakes and Kaiser Wildernesses. Only overnight pack supported trips are taken from this location.

Other developed recreation sites within the AU include:

- Badger Flat Campground (15 sites)
- Badger Flat Group Campground (1 site)
- Midge Group Campground (2 sites)
- College Campground (11 sites)
- Huntington Lake Boat Ramp Day Use

The Eastwood Visitor Center is located within this AU and is operated by the Forest Service. It is staffed during the summer and is one of the offices where Wilderness Visitor Permits may be obtained.

The following resorts are operated on National Forest System lands by private entities under a special use permit:

- Rancheria Enterprises. Resort services include a store, automotive and boat repairs, boat rentals, slip rentals, snow removal, snowmobile trail grooming, and snowmobile sales, service, and rentals.
- Lakeshore Resort. Resort services include a store, bar, post office, rental cabins, RV Park, lodge hall for events, and snowmobile trail grooming.

There are 24 recreation residences located within this AU. These are privately owned cabins authorized by special use permit.

This AU includes most of the trailheads that are used to enter the Kaiser Wilderness. These include:

- Deer Creek
- Potter Pass
- Badger Flat (developed)

As shown in Table 3.10 above, the AU is primarily classified as Roaded Natural (5,334 acres) with a lesser amount in the Rural (3,779 acres) and a small amount in the Semi-Primitive Non-Motorized (41 acres).

Typical recreational activities in the western portion of this AU adjacent to Huntington Lake include camping, picnicking, boating, sailing, fishing, and hiking. The majority of recreation use in the eastern portion of this AU includes hiking, backpacking, off highway vehicle use, hunting, and horseback riding. There is one family campground (Badger Flat) where private equestrian use is allowed. The Eastwood Sno-park and Huntington Lake sno-park are both within this AU.

Environmental Consequences

Alternative 1

Direct Effects

The removal of the D&F Headquarters and the spike station from the HNE AU would result in the total loss of the commercial stock related recreation opportunity within this AU.

The current facilities are fully compliant with the ROS and LRMP Guidelines, and due to the remote location, out of sight by most visitors, and character of the landscape the removal of the facilities would not alter the landscape in a way that would offer any visual improvement or remedy a non conforming use.

Indirect and Cumulative Effects

None specific to this AU, see overview.

Alternative 2

Direct Effects

The pack station would provide stock based services. The range and diversity of recreation opportunities would be preserved in this AU.

The current facilities are fully compliant with the ROS and LRMP Guidelines, and due to the remote location, out of sight by most visitors, and character of the landscape the retention of the facilities would not alter the landscape in a way that degrades the viewshed in a way that does not comply with the guidelines.

Indirect and Cumulative Effects

None specific to this AU, see overview.

Alternative 3

Direct Effects

Implementation of destination management in the Dinkey Lakes and Kaiser Wildernesses would have no identifiable effect on the recreational experience in the AU.

Indirect and Cumulative Effects

None specific to this AU, see overview.

WEST HUNTINGTON (HNW)

Affected Environment

No pack station facilities are located within the HNW AU. D&F utilizes portions of this AU for day rides and access to the Kaiser Wilderness. The typical day use route consists of riding along the lake on Trail 25E43.

Developed recreation sites within this AU include:

- Deer Creek Campground (28 sites)
- Catavee Campground (23 sites)
- Kinnikinnick Campground (17 sites)
- Bear Cove Picnic (18 sites)
- Billy Creek Picnic (7 sites)
- Upper Billy Creek Campground (44 sites)
- Lower Billy Creek Campground (13 sites)

The following sites are operated by private entities on National Forest System lands under a special use permit:

- Cedar Crest Resort. Resort services include a store, restaurant, cabin rentals, tent platform rentals, and fishing boat rentals.
- Huntington Lake Resort. Resort services include a store, restaurant, cabin rentals, boat rentals, slip rentals, and moorings.

- Camp La Salle. Camp is operated as a club for the Christian Brothers and is used as a recreational and spiritual retreat for the Brothers and their families.
- Camp Silver Fir. Camp is operated by the Boy Scouts of America as a site for scouts to utilize prior to and returning from backpacking trips into the Kaiser Wilderness.
- Billy Creek Guard Station Museum. The facilities at the museum are owned by the Forest Service and operated by a non-profit group to interpret and display the history of the Huntington Lake area.

There are 291 recreation residences located within this AU. These are privately owned cabins authorized by special use permit.

The only trailhead within the AU is Billy Creek (developed) which accesses the Kaiser Wilderness.

As shown in Table 3.10 above, the AU is primarily classified as Rural (1,341 acres) with lesser amounts in the Roaded Natural and the Semi-Primitive Non-Motorized. The areas used by the pack station are entirely within LRMP Management Area #1-Developed Recreation.

This AU is heavily used by the recreating public. At 7,000 feet in elevation, nestled among the pines and firs, beautiful Huntington Lake offers a multitude of recreational opportunities as well as a respite from the valley heat and city living. Typical recreational activities during the summer season include camping, fishing, biking, picnicking, sight seeing, water sports, hiking, and horseback riding. The concessionaire provides a variety of interpretive programs for the public at various locations throughout the scenic Huntington Lake Basin. The D&F day rides compliment but do not duplicate the diversity of recreational opportunities in this AU. Documented persistent user conflicts related to the pack station are not known. The pack station services are advertised by the local resorts and are utilized by resort customers, the camps, and by other forest visitors. During the winter season, Huntington Lake Road is closed to regular vehicle traffic and is groomed for snowmobile use and cross country skiing. These recreational activities are popular with both the public and the recreation residence owners.

Environmental Consequences

Alternative 1

Direct Effects

Although, there are no pack station facilities in this AU the removal of the pack station would reduce the recreational opportunity especially for day rides.

The removal of all commercial pack stock activities would not remedy any compliance problem with the ROS classification or LRMP Management Area guideline. Therefore there would be no effect to the recreation setting.

Indirect and Cumulative Effects

None specific to this AU, see overview.

Alternative 2

Direct Effects

The pack station would provide stock based services. The range and diversity of recreation opportunities would be preserved in this AU.

The proposed uses are fully compliant with the ROS guidelines and LRMP Management Guidelines for the area so there would be no degradation of the recreational experience in the HNE AU when measured against the ROS and Management Area guidelines.

Indirect and Cumulative Effects

None specific to this AU, see overview.

Alternative 3

Direct Effects

Implementation of destination management in the Dinkey Lakes and Kaiser Wildernesses would have no identifiable effect on the recreational experience in the AU.

Indirect and Cumulative Effects

None specific to this AU, see overview.

DINKEY FRONT COUNTRY (DFC)

Affected Environment

A CPO spike station, which is a day ride facility, is located within the DFC AU. CPO conducts 1 hour, 2 hour and all day rides from this location over a variety of use trails within this AU providing day rides for 540 visitors annually. Due to its close proximity to the Dinkey Creek Road and high visibility the CPO Spike Station is often visited by families simply to observe the horses and wranglers in action. The facilities are rustic and fully compatible with the ROS classification.

As shown in Table 3.10 above, the AU is primarily classified as Rural (1,602 acres) with a small amount of Roaded Natural (508 acres). The area is entirely within LRMP Management Area #4-General Forest.

Other developed recreation sites within the AU include:

- Dinkey Creek Campground (128 sites)
- Dinkey Creek Group Campground (1 site – 50 people)
- Dinkey Fisherman Picnic (8 sites)

The Glen Meadow Work Center and Dinkey Creek Ranger Station administrative sites are located in this AU and are operated by the Forest Service.

Other developed recreation sites within the AU include:

- Dinkey Creek Inn. Resort services include a store, restaurant, rental cabins, shower house, and gasoline sales.
- Camp Fresno Jr. Camp facilities and services include bunkhouses, kitchen, dining hall, and restrooms.

There are 44 recreation residences located within this AU. These are privately owned cabins authorized by special use permit.

This AU is heavily used by the recreating public. Located at 6,500 feet in elevation, spectacular Dinkey Creek runs year round. Well known for its excellent fishing opportunities, Dinkey Creek also offers swimming and splashing in its deep icy pools. This AU also boasts the Dinkey Historical Bridge, a redwood, bowstring arch truss bridge, which may be the only one of its kind in California. Typical recreational activities during the summer season include camping, fishing, biking, picnicking, sight seeing, hiking and horseback riding. Even though there are no groomed trails, snowmobile use and cross country skiing are popular recreational activities during the winter season. The day ride activities provided by CPO compliment and do not duplicate any of the services provided in this AU. There are no documented user conflicts with respect to pack station operations.

Environmental Consequences

Alternative 1

Direct Effects

The removal of the CPO spike station from the DFC AU would result in the total loss of the commercial stock related recreation opportunity. Specifically, about 540 clients annually would be denied the opportunity of day rides within this AU.

Even though visible from the Dinkey Creek Road, the current facilities are fully compliant with the ROS and LRMP Guidelines. The removal of current facilities would not alter the landscape in a way that would offer any visual improvement or remedy a non conforming use.

Indirect Effects

Because of its high visibility along the road it is not uncommon for family groups to visit the spike station to observe and pet the horses even though they are not clients of CPO. Removal of the CPO Spike Station would eliminate this recreational opportunity.

Cumulative Effects

None specific to this AU, see overview

Alternative 2

Direct Effects

The pack station would provide stock based day ride services. The range and diversity of recreation opportunities would be preserved in this AU.

The proposed facilities are fully compliant with the ROS and LRMP Guidelines, and while fully visible to visitors, retention of the facilities would not alter the landscape in a way that degrades the viewshed in a way that does not comply with the guidelines.

Indirect Effects
Forest visitors who are not clients but enjoy observing horses and the pack station operations would be able to have this recreational experience enhancement.

Alternative 3
Direct Effects
Implementation of destination management in the Dinkey Lakes Wilderness would have no identifiable effect on the recreational experience in the DFC AU.

Indirect Effects
Same as Alternative 2

Cumulative Effects
None specific to this AU, see overview.

TULE MEADOW (TUL)

Affected Environment
The CPO headquarters is located within the TUL AU. The only developed facilities in this AU are the pack station facilities which are very rustic in nature and fit well within the surrounding landscape. The headquarters facility serves as a meeting point prior to departing on a trip, however all stock is transported from this location to the appropriate trailhead based on destination. CPO offers no food service at this facility but clients can stay overnight prior to their trip in tent platforms. There are no other public uses of this AU.

There are two other remote facilities associated with CPO's use of the TUL AU located adjacent to Cliff Lake and Maxon trailheads. Each consist of a corral and associated minor facilities to temporarily hold stock just before or after a trip.

As shown in Table 3.10 above, the AU consists of 11 acres and is classified as Rural ROS and is within LRMP Management Area #4-General Forest.

Alternative 1
Direct Effects
The removal of the CPO Headquarters from the TUL AU would result in the total loss of the commercial stock related recreation opportunity.

The current facilities are fully compliant with the ROS and LRMP Guidelines, and due to the remote location, out of sight to most visitors, and character of the landscape the removal of the facilities would not alter the landscape in a way that would offer any visual improvement or remedy a non conforming use.

Indirect and Cumulative Effects
None specific to this AU, see overview.

Alternative 2

Direct Effects
The pack stations would provide stock based services. The range and diversity of recreation opportunities would be preserved in this AU.

The facilities and uses are fully compliant with the ROS guidelines for the area so there would be no degradation of the recreational experience in the AU when measured against the ROS guidelines.

Indirect and Cumulative Effects
None specific to this AU, see overview.

Alternative 3

Direct Effects
Implementation of destination management in the Dinkey Lakes Wilderness would have no identifiable effect on the recreational experience in the TUL AU.

Indirect and Cumulative Effects
None specific to this AU, see overview.

WISHON (WIS)

Affected Environment

CPO operates a spike station within this AU. There are no other developed recreation sites or trailheads within this AU.

The only facilities in this AU are operated by CPO and consist of an entrance sign and gate, corral, feed and water storage area, storage shed, loading dock and hitching rail, guest parking area and stock water system. This facility serves as a meeting point for clients prior to departing on a trip. All stock are transported to this location from the pole corral headquarters at Tule Meadow. There are no other public uses in this AU and therefore no user conflicts associated with the pack station

As shown in Table 3.10 above, the AU consists of six acres and is classified as Rural ROS and is within LRMP Management Area #4-General Forest. Pack stock facilities only occupy 3.4 acres of the AU.

Environmental Consequences

Alternative 1

Direct Effects
The removal of the CPO spike station from the WIS AU would result in the total loss of the commercial stock related recreation opportunity.

The current facilities are fully compliant with the ROS and LRMP Guidelines, and due to the remote location, out of sight by most visitors, and character of the landscape the removal of the facilities would not alter the landscape in a way that would offer any visual improvement or remedy a non conforming use.

Indirect and Cumulative Effects
None specific to this AU, see overview.

Alternative 2

Direct Effects
The pack stations would provide stock based services. The range and diversity of recreation opportunities would be preserved in this AU.

The current facilities are fully compliant with the ROS and LRMP Guidelines, and due to the remote location, out of sight by most visitors, and character of the landscape the retention of the facilities would not alter the landscape in a way that degrades the viewshed in a way that does not comply with the guidelines.

Indirect and Cumulative Effects
None specific to this AU, see overview.

Alternative 3

Direct Effects
Implementation of destination management would have no identifiable effect on the recreational experience in the WIS AU.

Indirect and Cumulative Effects
None specific to this AU, see overview.

3.1.3 Trails

3.1.3.1 Background

This analysis covers the following AUs: NED, CLO, EDI, CHQ, FLO, KAI, HNE, HNW, COO, DIL, HEL, NEL, DFC, TUL, and WIS. The Kaiser Wilderness is composed of the KAI AU, and the Dinkey Lakes Wilderness is composed of the COO, DIL, HEL and NEL AUs. This analysis also covers one non-wilderness use trail that is not included in any AU, but is adjacent to the Post Corral (POC) AU, which is defined in the 2005 Pack Stock Management EIS.

Current direction for use of Sierra National Forest (SNF) trails in the Dinkey Lakes, Ansel Adams and John Muir Wildernesses by commercial pack stations is found in the 2001 Wilderness Plan and the 2005 Pack Stock Management EIS.

This section analyzes the effects of commercial pack stock use on the trail stability of all system trails within the project boundaries and those use trails requested by the pack stations (see definitions for use trails and system trails below). Use trails not identified by commercial pack stations for their use, were not analyzed. In addition, this section also analyzes the effects of designating the Dinkey Lakes Wilderness Trail Management Plan (DLWTMP) to trail stability of system trails within the Dinkey Lakes Wilderness.

History

Trails in the non-wilderness areas of the SNF have their origins in a wide variety of activities and uses. While some trails were undeveloped routes used by various Native American tribes, many were logging skid roads, cattle paths, stock driveways, OHV or motorcycle routes, or mining roads. Upon cessation of the historic use that created the trails in the first place, many of the trails were adopted by the SNF as part of the trail system for recreational use by visitors.

Prior to the mid-1800s, trails in what are now the Kaiser and Dinkey Lakes Wildernesses were undeveloped routes used by various Native American tribes. The first developed trails for equestrian travel in this area occurred in the mid-1800s to provide transportation for mining and prospecting. Most of these new trails likely followed the same general routes as the earlier Native American routes, except where terrain or other conditions forced them to follow more stock-friendly alignments. Recreational trail use in these areas began in the late 1800s, and continued to grow into the early 1900s. After the creation of Huntington Lake, recreational use increased even further in the area that later became the Kaiser Wilderness and along the shoreline of Huntington Lake. As greater numbers of less-experienced riders were taken into remote areas, rugged trails were gradually improved by stockmen and government agencies to provide safer and more comfortable passage. Today, trails in the Kaiser Wilderness receive moderate to heavy use by hikers and light use by stock users (commercial and non-commercial).

3.1.3.2 Methodology

In this section, trails are analyzed for trail stability. Trails that are stable are able to handle visitor traffic without causing adverse impacts to resources through erosion of the trail. Trails that are unstable cause resource damage such as erosion and degradation of water quality where hydrologic connectivity exists. This resource damage may occur only when the trails are used by a greater number of people or stock than they were designed to accommodate, or may occur even with no use at all if the trails are already in an unstable condition (for example, if a gully has formed on the trail tread and the trail is sloping downhill, erosion may continue to occur even if no further use occurs on the trail).

Different trails are designed for different levels of use and different types of use. A trail designed only to accommodate light hiker use may be stable under its predicted use, but unstable under heavy hiker use or stock use. Trail design is critical to ensuring trail stability. Trails are typically designed to accommodate predicted use levels, but without adequate routine maintenance even the most well-designed trail can become unstable. As described above, many trails in the wilderness areas were originally Native American trails, as were some outside of wilderness areas. When these trails, as well as other trails that were formed before there was the concept of design standards, are incorporated as part of an official trails system, they should be brought up to design standard that will ensure stability at the predicted use levels. By definition, use trails are generally not designed to standard (see definition above) and are never maintained, as they are not part of the official trail system of the SNF.

In wilderness areas trails are designed only to accommodate predicted use. They are not over-constructed to withstand more use than is actually predicted. This is because in wilderness, the Forest Service should only make the minimum permanent human improvements to the landscape that will protect the wilderness resource from damage. Over-constructed trails are unnecessary permanent improvements that degrade wilderness character (see analysis of wilderness character in Section 3.1.2). For a detailed description of trail design strategies and standards, please refer to Tables 2.18, 2.19 and 2.20 in Chapter 2.

A trail has a greater risk of becoming unstable if risk factors are present. Risk factors are elements of the natural environment that make a trail inherently more susceptible to becoming unstable if the trail is not well designed and well maintained. Risk factors present in the geographic scope of this analysis include, but are not limited to:

- Grade (angle at which trail ascends or descends a slope)
- Steepness of terrain on which the trail is constructed
- Soil type
- Hydrologic connectivity
- Dominant vegetation type (forest, meadow, alpine, etc.)

Trails are constructed to retain stability under expected use levels and use types even with risk factors present. As stated above, trail design specification are listed in Table 2.20 in

Chapter 2. When trails are not adequately maintained, however, stability can become compromised if risk factors are present, leading to resource damage.

Analysis Element

- **Trail stability** is the analysis element used in this section to assess the effects of the various alternatives on trails, because it is the best measure of potential resource damage related to trails.

Trail stability is analyzed in two ways. For some trails, trail assessments were performed between 2003 and 2006. On these trails, trail resource condition ratings were assigned based upon trail stability and risk factors (see project record for trail assessments). Trail conditions were rated on a scale of 1 to 5. For the purposes of this analysis, any trail that was rated 3 or above is considered to be currently unstable; any trails rated 2 or below is considered stable. Instability on trails rated 3 or higher is often isolated to specific location along the trail, while other segments of the same trail are in stable condition. For the purposes of this analysis, an entire trail was considered to be unstable if any portion of the trail caused the rating to be 3 or above.

For trails that were not assessed, trail stability is analyzed based upon known current conditions and risk factors on trails, as determined by wilderness managers, wilderness rangers and resource specialists.

3.1.3.3 Overview – Common to All

Affected Environment

Trails in the both the Kaiser and Dinkey Lakes Wildernesses receive moderate to heavy use because most trailheads are easily accessible by vehicle. In addition, the terrain in the Dinkey Lakes Wilderness is not as rough as in the adjacent John Muir and Kaiser Wildernesses. Because the Dinkey Lakes Wilderness is less rugged, its trails are generally more stable than trails in the John Muir or Kaiser Wildernesses, but there are still some trails that lack adequate drainage, cut through meadows and wet areas, and lack general maintenance. Since these trails have received minimal maintenance and repairs in recent years, some trails with even moderate use show some signs of instability, especially where risk factors such as steepness or meadow environs are present.

System Trails

System trails serve as the primary transportation routes for both private and commercial visitors to destinations that are not accessible by road in non-wilderness areas, and serve as primary transportation routes for both private and commercial visitors to all destinations within the Kaiser and Dinkey Lakes Wildernesses. Trail inventories have been maintained on the SNF during the past 40-50 years, with varied levels of accuracy. System trails are defined as "forest development trails wholly or partially within or adjacent to and serving the National Forests and other areas administered by the Forest Service that have been included in the Forest development transportation plan (2001 Wilderness Plan)." Many non-wilderness system trails are used by commercial pack station access wilderness areas on the SNF.

In all alternatives, a trail transportation system is being designated for the Dinkey Lakes Wilderness, which includes adding or removing trails from past inventories to the current trail system (described in Alternative 1) and assigning trail management levels on each trail consistent with management goals of the respective alternative. These trail management levels are based primarily on the desired management goal of each alternative, as well as other known or anticipated uses of the trail system. In Alternatives 2 and 3, the intent is also to align Trail Classes with the current or anticipated use types and levels, if such use is consistent with desired management conditions for the area. The long-term effect of correlating trail classes and the managed use types and levels will be trails with greater stability and less resource damage.

Trail class designations define the development, maintenance, and characteristics of a trail. These are defined in Tables 2.18 and 2.19. Generally, lower trail classes have a lower, more primitive development and management character, and tend to be of smaller scale in almost all design elements. Lower trail classes can accommodate lower use levels while remaining stable, and fit well in more primitive settings with limited visitation. Higher trail classes have greater development and more highly evident management. They tend to have more and larger scale structures, wider footprint, and tend to be more easily traveled. These trails are intended to remain stable under intensive use. Their character is more consistent with higher use areas that have greater visitation and higher evidence of management.

Trail Class 3 trail in high-use Recreation Category 3 area.

Some additions to the DLWTMP are administrative corrections from past trail system inventories. For example, some trails had been inadvertently dropped due to a typographical error, or confusion with another similarly named trail. Correcting such errors will not have a material effect on the physical resource or costs associated with maintaining trails. Other errors in the inventory may have been caused by inadequate field information.

Commercial pack stock operations use most of the system trails within the Kaiser Wilderness. In non-wilderness areas of the SNF, commercial stock use of system trails is primarily concentrated on trails that can be accessed within a one- to two-hour ride from the pack station headquarters or spike stations, or on non-wilderness system trails that access wilderness areas. While the commercial stock generally stay on either system or use trail in non-wilderness areas and in the Kaiser and Dinkey Lakes Wildernesses, they are allowed to travel cross country in these areas so long as no discernable tread is formed.

Over 40 miles of system trail lie within the Dinkey Lakes Wilderness. Several system trails in the Dinkey Lakes Wilderness also serve as access routes into the John Muir

Wilderness. Additionally, several miles of trail just outside of the wilderness boundary provide access to wilderness from trailheads and pack stations.

Private hikers and equestrians are allowed to travel off of system trails – either on use trails or cross-country in areas with no trails. Commercial stock are currently limited to system trails unless otherwise approved (per direction in the 2001 Wilderness Plan).

Use Trails

Use trails (also referred to as user-created trails, user-defined trails or non-system trails) are trails or routes that are not on the Forest inventory. These trails have formed from repeated use associated with accessing campsites, remote lakes, connecting two roads and/or trails or accessing other locations not served by system roads or trails. Occasionally these trails provide an alternative access to system trails. Some of these have developed primarily by and for non-commercial users, such as angler trails along creeks and lakes, mountaineering routes, or paths over high un-trailed passes. Others are primarily used by commercial stock to access campsites away from system trails or to access lesser-used destinations where no trail has been constructed. Some of these use trails are nearly undetectable, because the use levels may be so low – in some cases less than one trip annually. Others may be used on a daily basis and through repeated use have become clearly defined.

Alternatives 2 and 3 propose a limited network of use trails that would be approved for commercial stock use. All use trails not specifically approved would be prohibited to commercial stock use. Well-developed use trails may sometimes have similar characteristics to lower-development system trails. In the action alternatives, a limited number of these are approved for commercial stock use. Some of these are specifically addressed as use trails, while others are addressed within the context of approved campsites (which assume an access path to the site). There is no prohibition on the use of use trails or cross-country routes to private equestrians or hikers in any alternative. Generally, if use levels and resource effects are low, and there is no other overriding need for maintaining or managing the trail, use trails are allowed to remain off of the official SNF trail system.

Since use trails generally form in the line of easiest or most direct route for the user, with no designed alignment or construction, they are sometimes located in areas that are not desirable for trail and resource stability. Use trails very rarely have or need structural improvements or active management, because the use tends to be relatively low. Structures are sometimes present on trails which were once managed as system trails or pre-wilderness roads, and which are no longer determined to be needed on the trail system because of changes in use patterns.

With no structural improvements or other routine maintenance, use trails may be especially susceptible to rapid degradation when they have high use and/or are in areas with many risk factors. With the exception of use trails in the NED AU, structural solutions and improvements are not generally used to mitigate resource effects; and if used, would be of limited scale. This makes use type and levels, both commercial and

private, the primary factors in creating and/or mitigating effects on a use trail if there are risk factors (see definition in Methodology portion below) present that would allow for rapid degradation.

All action alternatives (Alternatives 2 and 3, which would reissue operating permits to commercial pack stations) include an analysis of the stability of use trails that were requested for use by commercial pack stations. Unless approved for use, commercial stock are not permitted on use trails, including in the Kaiser and Dinkey Lakes Wildernesses where cross-country travel is otherwise allowed, so long as it does not form a discernable tread. It is important to note that cross-country travel by commercial pack stations outside of the Kaiser and Dinkey Lakes Wilderness Areas is also permitted, so long as detectable tread is not created in the process of traveling cross-country. See Table 2.15 for approval or prohibition of use on specific use trails by alternative.

There is a relatively high density of use trails in the Dinkey Lakes Wilderness because of its moderate to high visitor use. The vast majority of these use trails are concentrated in the Dinkey Lakes Basin and near lakes off the Dinkey Lakes Trail to the east of the Dinkey Lakes Basin. These use trails typically access campsites or are used by anglers to access various points along the shores of these lakes. Few have been created as shortcuts from one trail to another.

Environmental Consequences

The following tables summarize the actions taken in the alternatives. These actions are the basis of the analysis of effects below:

Table 3.13: Alternatives 2 and 3 Use Trails Summary

USE TRAILS Summary Alternatives 2 and 3	Alt. 2 Use Trails	Alt. 2 Estimated Miles	Alt. 3 Use Trails	Alt. 3 Estimated Miles
Use Trails/Miles Addressed	63	39.6	69	48.5
Approved Trails/Miles	43	25.8	47	33.4
Prohibited Trails/Miles	20	13.8	22	15.1

Table 3.14: Alternatives 2 and 3 Use Trails Summary by Analysis Unit

Analysis Unit	Alt. 2 Number Miles Addressed	Alt. 3 Number Miles Addressed	Alt. 2 Number Miles Approved	Alt. 3 Number Miles Approved	Alt. 2 Number Miles Prohibited	Alt. 3 Number Miles Prohibited
Clover (CLO)	8 trails 3.5 miles	8 trails 3.5 miles	3 trails 1.1 miles	3 trails 1.1 miles	5 trails 2.4 miles	5 trails 2.4 miles
Nelder	23 trails	27 trails	17 trails	19 trails	6 trails	8 trails

Analysis Unit	Alt. 2 Number Miles Addressed	Alt. 3 Number Miles Addressed	Alt. 2 Number Miles Approved	Alt. 3 Number Miles Approved	Alt. 2 Number Miles Prohibited	Alt. 3 Number Miles Prohibited
(NED)	17.8 miles	21.0 miles	12.1 miles	14.0 miles	5.7 miles	7.0 miles
Edison (EDI)	8 trails 3.9 miles	8 trails 3.9 miles	6 trails 2.9 miles	6 trails 2.9 miles	2 trails 1.0 miles	2 trails 1.0 miles
Florence (FLO)	2 trails 0.4 miles	2 trails 0.4 miles	2 trails 0.4 miles	2 trails 0.4 miles	0 trails 0.0 miles	0 trails 0.0 miles
Chinquapin (CHQ)	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles
Kaiser (KAI)	2 trails 1.1 miles	2 trails 1.1 miles	1 trail 0.7 miles	1 trail 0.7 miles	1 trail 0.4 miles	1 trail 0.4 miles
East Huntington (HNE)	4 trails 5.9 miles	4 trails 5.9 miles	3 trails 3.8 miles	3 trails 3.8 miles	1 trail 2.1 miles	1 trail 2.1 miles
West Huntington (HNW)	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles
Coyote (COO)	2 trails 1.0 miles	2 trails 1.0 miles	0 trails 0.0 miles	2 trails 1.0 miles	2 trails 1.0 miles	0 trails 0.0 miles
Dinkey Lakes (DIL)	4 trails 1.9 miles	4 trails 1.9 miles	2 trails 1.0 miles	0 trails 0.0 miles	2 trails 0.9 miles	4 trails 1.9 miles
Helms (HEL)	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles
Nelson (NEL)	3 trails 1.0 miles	3 trails 1.0 miles	3 trails 1.0 miles	3 trails 1.0 miles	0 trails 0.0 miles	0 trails 0.0 miles
Dinkey Front Country (DFC)	6 trails 2.9 miles	6 trails 2.9 miles	5 trails 2.6 miles	5 trails 2.6 miles	1 trail 0.3 miles	1 trail 0.3 miles
Tule Meadow (TUL)	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles	0 trails 0.0 miles
Wishon (WIS)	0 trails 0.0 miles	2 trails 5.7 miles	0 trails 0.0 miles	2 trails 5.7 miles	0 trails 0.0 miles	0 trails 0.0 miles
Post Corral (POC)*	1 trail 0.2 miles	1 trail 0.2 miles	1 trail 0.2 miles	1 trail 0.2 miles	0 trails 0.0 miles	0 trails 0.0 miles

* Post Corral AU is identified in the 2005 Pack Stock Management EIS

Table 3.15: Dinkey Lakes Wilderness Trail Management Plan Summary

SYSTEM TRAILS SUMMARY	Alt. 1	Alt. 2	Alt. 3
Total System Miles	40.1	46.9	41.6
TC1	23.0	9.0	11.2
TC2	2.3	18.8	13.0
TC3	14.8	19.1	17.1
NSCS	0.6	0.8	0.8
Trail Miles Avail. To Comm.	N/A	46.1	40.8
% System Trails Avail to Comm.	N/A	98%	98%

Table 3.16: System Trail Actions Comparison of No Action to Alternatives 2 and 3

WILDERNESS-SCALE ACTION SUMMARY Compared to No Action	Alt. 2 Trail Miles	Alt. 3 Trail Miles
Added to System	6.8	3.5
Removed from System	0.0	2.0
Increased TC	20.4	12.6

Table 3.17: Comparison of Miles of Trails Open to Commercial Stock in Alternative 1

Analysis Unit	System Trail Miles	System Trail Miles Open to Comm. Stock	Use Trail Miles Requested	Use Trail Miles open to Comm. Stock	Total Trail Miles	Total Trail Miles Open to Comm. Stock
NED	20.1	0.0 (0%)	0.0	0.0 (0%)	21.0	0.0 (0%)
CLO	28.9	0.0 (0%)	0.0	0.0 (0%)	28.9	0.0 (0%)
EDI	8.1	0.0 (0%)	0.0	0.0 (0%)	8.1	0.0 (0%)
CHQ	2.6	0.0 (0%)	0.0	0.0 (0%)	2.6	0.0 (0%)
FLO	0.9	0.0 (0%)	0.0	0.0 (0%)	0.9	0.0 (0%)
KAI	29.4	0.0 (0%)	0.0	0.0 (0%)	29.4	0.0 (0%)
HNE	14.9	0.0 (0%)	0.0	0.0 (0%)	14.9	0.0 (0%)
HNW	9.8	0.0 (0%)	0.0	0.0 (0%)	9.8	0.0 (0%)
COO	14.0	0.0 (0%)	0.0	0.0 (0%)	14.0	0.0 (0%)
DIL	8.3	0.0 (0%)	0.0	0.0 (0%)	8.3	0.0 (0%)
HEL	12.3	0.0 (0%)	0.0	0.0 (0%)	12.3	0.0 (0%)
NEL	9.9	0.0 (0%)	0.0	0.0 (0%)	9.9	0.0 (0%)
DFC	2.9	0.0 (0%)	0.0	0.0 (0%)	2.9	0.0 (0%)

Analysis Unit	System Trail Miles	System Trail Miles Open to Comm. Stock	Use Trail Miles Requested	Use Trail Miles open to Comm. Stock	Total Trail Miles	Total Trail Miles Open to Comm. Stock
TUL	0.0	0.0 (0%)	0.0	0.0 (0%)	0.0	0.0 (0%)
WIS	0.0	0.0 (0%)	0.0	0.0 (0%)	0.0	0.0 (0%)
Total	*162.1*	*0.0*	*0.0*	*0.0 (0%)*	*162.1*	*0.0 (0%)*

Table 3.18: Comparison of Miles of Trails Open to Commercial Stock in Alternative 2

Analysis Unit	System Trail Miles	System Trail Miles Open to Comm. Stock	Use Trail Miles Requested	Use Trail Miles open to Comm. Stock	Total Trail Miles	Total Trail Miles Open to Comm. Stock
NED	20.1	20.1 (100%)	17.8	12.1 (68%)	37.9	32.2 (85%)
CLO	28.9	28.9 (100%)	3.5	1.1 (31%)	32.4	30.0 (93%)
EDI	8.1	8.1 (100%)	3.9	2.9 (74%)	12.0	11.0 (92%)
CHQ	2.6	2.6 (100%)	0.0	0.0 (0%)	2.6	2.6 (100%)
FLO	0.9	0.9 (100%)	0.4	0.4 (100%)	1.3	1.3 (100%)
KAI	29.4	29.4 (100%)	1.1	0.7 (64%)	30.5	30.1 (99%)
HNE	14.9	14.9 (100%)	5.9	3.8 (64%)	20.8	18.7 (90%)
HNW	9.8	9.8 (100%)	0.0	0.0 (0%)	9.8	9.8 (100%)
COO	19.1	19.1 (100%)	1.0	0.0 (0%)	20.1	19.1 (95%)
DIL	8.5	8.5 (100%)	1.9	1.0 (53%)	10.4	9.5 (91%)
HEL	13.2	13.2 (100%)	0.0	0.0 (0%)	13.2	13.2 (100%)
NEL	10.5	9.7 (93%)	1.0	1.0 (100%)	11.5	10.7 (93%)
DFC	2.9	2.9 (100%)	2.9	2.6 (90%)	5.8	5.5 (95%)
TUL	0.0	0.0 (0%)	0.0	0.0 (0%)	0.0	0.0 (100%)
WIS	0.0	0.0 (0%)	0.0	0.0 (0%)	0.0	0.0 (100%)
Total	*168.9*	*168.1 (99%)*	*39.4*	*25.6 (65%)*	*208.3*	*193.7 (93%)*

Table 3.19: Comparison of Miles of Trails Open to Commercial Stock in Alternative 3

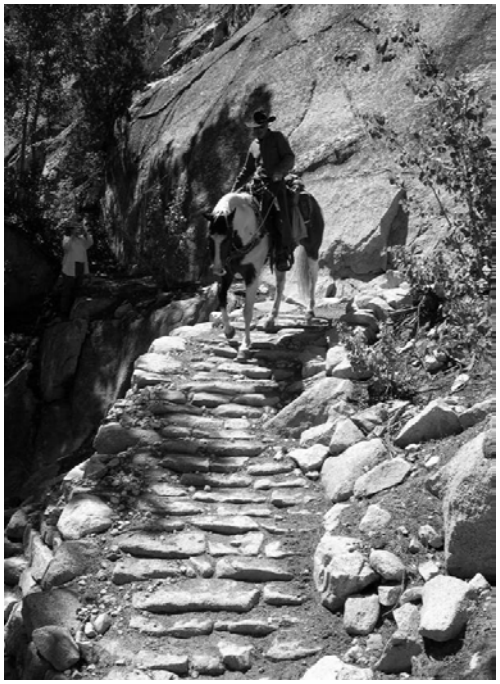
Analysis Unit	System Trail Miles	System Trail Miles Open to Comm. Stock	Use Trail Miles Requested	Use Trail Miles open to Comm. Stock	Total Trail Miles	Total Trail Miles Open to Comm. Stock
NED	20.1	20.1 (100%)	21.0	14.0 (67%)	41.1	34.1 (83%)
CLO	28.9	28.9 (100%)	3.5	1.1 (31%)	32.4	30.0 (93%)
EDI	8.1	8.1 (100%)	3.9	2.9 (74%)	12.0	11.0 (92%)
CHQ	2.6	2.6 (100%)	0.0	0.0 (0%)	2.6	2.6 (100%)
FLO	0.9	0.9 (100%)	0.4	0.4 (100%)	1.3	1.3 (100%)
KAI	29.4	29.4 (100%)	1.1	0.7 (64%)	30.5	30.1 (99%)
HNE	14.9	14.9 (100%)	5.9	3.8 (64%)	20.8	18.7 (90%)

HNW	9.8	9.8 (100%)	0.0	0.0 (0%)	9.8	9.8 (100%)
COO	13.8	13.8 (100%)	1.0	1.0 (100%)	14.8	14.8 (100%)
DIL	8.5	8.5 (100%)	1.9	0.0 (53%)	10.4	8.5 (82%)
HEL	13.2	13.2 (100%)	0.0	0.0 (0%)	13.2	13.2 (100%)
NEL	10.5	9.7 (93%)	1.0	1.0 (100%)	11.5	10.7 (93%)
DFC	2.9	2.9 (100%)	2.9	2.6 (90%)	5.8	5.5 (95%)
TUL	0.0	0.0 (0%)	0.0	0.0 (0%)	0.0	0.0 (100%)
WIS	0.0	0.0 (0%)	5.7	5.7 (100%)	5.7	5.7 (100%)
Total	*163.3*	*162.5*	*48.3*	*33.2 (69%)*	*211.6*	*195.7 (92%)*

The remainder of this Environmental Consequences Overview section presents general information on the effects of various components of the alternatives. Effects that are specific to each alternative are presented in the Analysis Unit Level Evaluation section. The specific effects in that section tier to the discussion presented here.

Direct and Indirect Effects

Effects of pack stock on trails consist primarily of churning of trail tread surface materials and compaction of subsurface tread materials. This action makes soils available for transport by water, or to a lesser extent, physical removal on hooves or feet, or in some cases, high winds. When a trail is incised through soil removal, it begins to channel surface runoff. Soils deeper than a few inches within the trail tread become compacted over time, making the soil less permeable to surface runoff, increasing the intensity and velocity of water flows within the trail way. This loss of soil, if unchecked, can create unstable and awkward conditions, making trails less comfortable to travel for both hikers and equestrians.



Hardened trail surface in steep terrain withstands heavy stock use.

Trail structures in the tread and supporting the trail are subject to very great forces by heavily laden pack animals, and can be loosened or damaged by such use. Soils which are loosened in the tread tend to be displaced to either side, creating berms, which further contain water on the trail. The loose soil can also plug waterbars and other drainage structures, requiring an increase in frequency of maintenance in order to keep them functional.

These impacts can combine to create degraded conditions of the trail itself, such as incision, loss of tread, clogging or failure of drainage structures, or collapse of support structures, making the trail hard to walk or ride on unless high levels of development and maintenance are performed. Additionally, these factors can result in increased off-trail resource effects, such as sedimentation into nearby streams and lakes, or a lowering of

the water table in meadows when a trail becomes deeply entrenched. When trails become overly degraded, alternative routes are sometimes used by both hikers and by equestrians to bypass obstacles, creating multiple trails and added sources of impact.

In most scenarios, the effects of foot travel with no or only occasional stock use on a trail surface tend to be greater compaction of soils at the very surface of the trail and less compaction deeper in the soil structure. While this makes less loose soil available for off-trail sedimentation, berming, or filling drainage structures, it can reduce the absorption of water and increase velocity of surface flows. On trails with excessive grades for the soil type (generally >20% without tread retaining structures), increased water velocity can remove more soil, and deep incision and loss of soil can occur. In most cases, trails with only hiker traffic tend to be more stable and require less work and cost to maintain. As seen on certain trails which have been closed to stock long term, trails carrying only foot traffic tend to hold an outsloped surface (which sheds water), have firm tread, and require less drainage maintenance. Comparably built structures tend to last longer. It also is evident that there tends to be less susceptibility to incision at moderate water flows on comparable trail grades of foot-only trails relative to multiple-use trails.

Trails that are well-designed with moderate grades and sufficient high-quality structural improvements and/or are in terrain and conditions with very few risk factors are more capable of resisting the impacts of heavy stock and hiker use, and generally will remain relatively stable with just basic recurring maintenance efforts. Trail structures, such as waterbars that deflect water from the trail, check dams or tread retainers that hold tread in place, or rock steps that help gain grade with less surface erosion potential can protect both the trail infrastructure and off-trail resources.

Conversely, trails with little or no design or structural improvements in areas with a higher intensity of risk factors, tend to be more susceptible to the effects of such use, potentially resulting in degradation of the trail itself and higher effects on resources in the trail area. Risk factors, such as steep natural slopes, steep trail grade, loose soils, connectivity to stream systems, or proximity to riparian habitat may complicate and multiply these effects.
Research on the influence of various use types on trails has repeatedly shown that stock use has more erosion potential than either hikers or llamas (Cole and Spildie 1998, Weaver and Dale 1978). However trail location may be an important factor in causing deterioration of a trail (Helgath 1975). Kuss (1987) found that the greatest change in trail depth, cross-sectional area and soil penetration resistance was found to occur with low levels of use. Burdee and Renfro (1985) found that trail depth was related to visitor use amongst other factors, while trail width was related to soil type of vegetation type on the Appalachian Trail. The timing and frequency of maintenance is also a factor in trail deterioration. Amount of use is merely one variable for impacts on trails.

Preventing or mitigating these effects requires increased maintenance efforts and higher costs with a direct relationship to the amount of pack stock use when all other factors are equal. Trail maintenance budgets on the SNF have historically been inadequate to fully

maintain all trails to standard. This has resulted in degradation of trail stability on trails that have risk factors present, and has resulted in mainly the highest-use and highest-priority trails receiving the bulk of maintenance resources.

Effects of specific trail-related actions taken in various alternatives
Trail-related action types in the various alternatives are limited to the following:

1. Approval of Use Trails for Commercial Stock Use
2. Prohibition of Use Trails from Commercial Stock Use
3. Adding a trail to the Transportation System inventory.
4. Removing a trail from the Transportation System inventory.
5. Increasing the Trail Management Class of an existing trail.
6. Designating Trails as "Not Recommended For Stock" or "NRFS."
7. Suitability of system trails for Commercial Stock. (Designation of trails "Not Suitable for Commercial Stock" or "NSCS")

Effects of each of these actions will generally be the same on each trail. The difference between the effects of these actions in each alternative is related primarily to the extent and number of actions within the analysis unit.

Effects of Approval of Use Trails for Commercial Stock Use
In general, when approving use by commercial pack stock on a non-system trail, the primary determining factor (aside from whether commercial stock are allowed to access the destination), is the current and predicted stability of the use trail under the anticipated commercial use levels. When the potential use on a trail is better known, such as when there is a destination quota, the approved trail is more likely to remain stable. If future use at a site-specific level is poorly understood, it is more difficult to predict whether a trail would be stable with future use.

Continuing commercial use on use trails which are currently well-defined, and are located in stable areas with minimal risk factors will have no effect on trail stability if use remains at or below current levels.

Barely defined use trails or routes would have the potential to show decreased trail stability, if use were to increase beyond current low levels. If use of this type of route is capped at existing or lower levels of use, the route would likely not become more evident and would retain its current condition. Use trails that are approved for commercial stock will retain trail stability under anticipated low levels of use. If re-occurring use increases, however, there would likely be a decrease in trail stability where risk factors are present. Where no risk factors are present, there would be no decrease in trail stability, even with additional churning of soil related to additional commercial stock use.

Effects of Prohibition of Use Trails from Commercial Stock Use
In some cases, use trails would be prohibited when a high level of resource effect is presently occurring, and/or risk factors are present which created a high potential for degradation if use began or increased. Use trails that would be prohibited to commercial stock would generally have a reduction in adverse effects to trails and resources. The

scale of this reduction depends on how much the use trail is being used by commercial stock currently and how much the trail would continue to be used by private equestrians and hikers.

Barely defined use trails or routes that currently receive so little use as to be nearly undetectable, even in sensitive areas such as stream crossings, would not change noticeably in character or in physical effects by the prohibition of commercial stock. The effect of prohibiting commercial pack stock from these undefined trails would be to ensure that use levels could not increase to the point that a trail becomes substantially evident, or that certain resources may become affected. This also would ensure that dispersed trampling of potentially sensitive plants or amphibians, such as the Yosemite toad, would not occur by commercial pack stock. Depending upon the level of non-commercial use, private stock and hikers may still cause some of these same effects.

Effects of Adding Trails to the System
Trails that are being added to the system have generally been used by a moderate to large number of wilderness visitors, usually exceeding the capacity of an unmanaged use trail. Some have already been inadvertently managed as a system trail in the past, and appear to benefit from continued or future management as a system trail. Others were inadvertently omitted from the existing trail plan (analyzed in Alternative 1), and are simply clerical errors that are being corrected. Since the trails were added to the system with consideration of anticipated use types and levels expected in each alternative (including both commercial and private stock and hikers), the effects of adding these trails to the system is likely to be a reduction in direct resource effect in the immediate trail vicinity.

When trails are added to the system, they are assigned a Trail Management Class, which defines the level of development, maintenance and management the trail will receive (see discussion under Trail Classes below). Once a trail is added to the system, opportunities increase for management of the trail and its effects — including mitigating resource impacts — since trail maintenance funds can only be spent on system trails. Guided by trail class designation, appropriate structural improvements, such as drainage structures and tread retention structures can be installed, which will reduce erosion of the trail and sedimentation to off-trail resources. Whether such work is accomplished by Forest Service funded efforts or by volunteers, the design standards of the designated Trail Class will apply, which helps ensure that intended management of a destination and the trail will be implemented.

Once the trail is on the transportation system, there is a higher likelihood that trails will be rerouted away from particularly sensitive areas as funding or work resources become available. Signage consistent with wilderness and the trail class will also be installed. There should be a net reduction in total area trampled by dispersed use where signs or other improvements help keep wilderness visitors on one alignment. In some cases, ensuring that all use stays on the one designated route may increase the direct effects on a trail. However, since use would not be causing as many dispersed and unmanaged effects, there will be a net beneficial effect on the wilderness resource.

Routes which are completely undefined and so lightly used that there appeared to be no need for trail management were not added to the system. Similar trails that are on the current system (Alternative 1) were removed from the system in some action alternatives. Leaving these undefined routes off the trail system will likely prevent increased use and effects on those trails.

Effects of Removing Trails from the System
Trails that are being removed from the system have generally seen very little use over long periods of time by wilderness visitors. It is anticipated that the trails will show even lower use over time once they are removed from the system, since removal of a trail from the system will also include removal of signs along the trail and at the trail's intersections. In addition, these trails will eventually be removed from maps when forest and visitor maps are reprinted.

Low levels of use on these trails are typically evidenced by highly intermittent tread or lack of tread altogether, to the degree that the trails are often difficult or impossible to follow. Due to low use, nature has been able to reclaim large sections of these trails, providing stabilized soil in the trail tread and absorbing the energy of water that is captured in any remaining trail tread. This natural reclamation of these trails allows the trails to be removed from the system without having to due extensive naturalization or stabilization to prevent severe resource damage from occurring. No trails that have been proposed to be removed from the current trails system have continuing resource damage concerns.

Effects of Increasing the Trail Management Class of an Existing Trail
As indicated above, if the increase in Trail Class simply makes the inventory consistent with existing trail management, and this management level is consistent with other area direction, there would be no notable effects on the trail, adjacent resources, or costs associated with maintenance.

When increasing the Trail Class designation will also require physically upgrading the trail above the past intended management of a trail, potential effects of increasing the management level (and future development levels) of a trail would primarily be in visitor perceptions of increased trail management. If the trail management level is currently insufficient for the existing or desired management of a destination, raising the trail management level may improve the experience of many wilderness visitors. Conversely, a trail managed at an excessively high level may appear to be out of character with more primitive environments, since the trail would be relatively easy to follow and travel, and may have more substantial structures than would be present in the most primitive wilderness destinations. In all action alternatives, trail management levels were designed with some consideration of desired management condition for destinations, so it is likely that in most alternatives, this effect will be minimal.

If a trail has been actively managed in the past at a much lower level than is being designated, a number of effects could occur. When a trail is currently relatively

undeveloped and extremely difficult to travel by either hikers or stock, bringing the trail to a much higher development level than exists on the ground could potentially allow more ready access by types and/or quantity of wilderness visitors to a particular destination. If the designated standard requires lower trail grades, wider tread, and more substantial structural development than currently exists, there may be some additional site-specific effect at the time of reconstruction efforts. There could be a wider footprint and larger area of disturbance and potentially disturbance of areas where rocks or other construction materials are obtained. Physical effects would occur at the time a trail is reconstructed to designated standard, and generally would not increase due to subsequent recurring maintenance performed on the trails. Ongoing physical impacts to the trail and associated resources would generally be greatly reduced after a trail has been reconstructed to a higher standard.

In many cases, designating a higher trail class to meet an immediate or expected demand will have beneficial effects on the physical environment. If a use trail or low-development system trail with minimal management is not so difficult that it prevents travel, and it is currently receiving heavy use, it is likely that the trail is already causing some physical resource impacts that could be corrected by more intensive management. In these cases, designating a higher class and bringing the trail to standard would likely have a beneficial effect by stabilizing damaged sections of trail, improving drainage and reducing effects on various resources without significantly changing use patterns. Improving the trail's stability has the potential to reduce the overall footprint of disturbance by providing a single well-used trail, instead of multiple braided routes where hikers or stock are bypassing obstacles. In these scenarios, the greatest benefit would generally be in meadows, riparian areas, and at water crossings, where developing one stable route can substantially reduce erosion and hydrologic disturbance.

Effects of Designating Trails as Not Recommended For Stock (NFRS)
In some alternatives, trails are designated "Not Recommended for Stock," or "NRFS." The NRFS designation will be the basis for providing advisories and expectations for private equestrians, but will not otherwise prohibit commercial or private equestrian use. Trails designated as NRFS are based on a subjective assessment of the difficulty and possible risks to equestrians who may not be familiar with uncharacteristically awkward conditions on a particular trail. While Trail Class provides some general description of development and management traits for a trail, it does not necessarily describe that a trail may have problems or obstacles that could create special concern for equestrians. For example, a TC1 trail with minimal development that gradually climbs through a gentle, sandy canyon will have very different obstacles and potential problems than a TC1 trail which traverses very steep and/or rocky terrain with large jump-offs and/or difficult route finding.

Since this designation will assist equestrians in ensuring that they are prepared for such the rugged nature of these trails, the greatest effect would be a more realistic visitor expectation and increased safety for stock users, who could make more informed choices about their travels. Even without actual restrictions of use, this will likely reduce the number of stock users who might otherwise unwittingly attempt these trails, unaware of

the trail conditions. Since these trails tend to be rough, undeveloped, relatively unstable and susceptible to the impacts of stock use, this designation would likely cause a slight reduction to trail erosion and impacts to resources.

Most physical resource or trail stability effects resulting from designating trails as NRFS (if not also closed to Commercial Stock – see below) will likely be insignificant, as the level of stock on such trails is generally very low at present, and stock could still use these trails, if they choose. The effects of designating a trail as both NRFS and "Not Suitable for Commercial Stock," or "NSCS" (see below), are more substantial and are described in the Suitability section below.

Trails designated NRFS will still receive basic recurring maintenance at a level consistent with the design and management considerations of the designated Trail Class. It is likely, however, that those conditions which are most impractical for equestrians, and which were the basis for the NRFS designation, will not be substantially repaired. The general character of the trails will likely remain the same, since the limited maintenance funds will likely be focused primarily on trail and resource stability.

Effects of Designating Trails as Not Suitable for Commercial Stock (NSCS)
In all action alternatives, determinations will be made on which system trails are suitable for recurring use by commercial pack stock. Trails which either cannot be sufficiently managed in a stable condition under recurring pack stock use, or which provide access to areas which are determined to be inappropriate for commercial pack stock operations are designated as "Not Suitable for Commercial Stock," or "NSCS".

As noted previously, most trails designated "NSCS" have received low commercial use and practically no private equestrian use in recent years, since conditions on these trails have not been desirable for most stock users. Therefore, after commercial stock are prohibited from using a trail, there will likely be very little if any equestrian use remaining on the trail. This would limit the majority of equestrian use to trails which are comparably stable with stock use, and that require relatively low investment of maintenance resources. Many of these trails will still have some sections that are substandard or damaged, but there would likely be no need to change current design standards for the trails in order to complete trail repair for non-stock users.

System trails that are in severely degraded condition and designated as NSCS may require physical repair even after all commercial stock has been removed. In these cases, removing commercial stock from these degraded trails and high risk factor areas will likely slow the rate of deterioration of resource condition and prevent further expansion of impacts. Actual physical improvement of resource and trail condition will not likely occur until future repairs and stabilization are implemented. Once accomplished, this rehabilitation has a much higher chance of success over the long-term if no commercial stock (and only occasional private stock) uses the trail.
Considering very limited maintenance funding, reducing the need for expenditures on trails closed to commercial stock will also allow greater trail maintenance and resource stability on the rest of the trails system. Assuming that maintenance funds remain

basically stable, the net effect would likely be a slight improvement in trail condition on those trails which remain open to commercial use.

Trails that are designated both NSCS and NRFS would likely see the greatest potential trail and resource improvement, since no commercial stock will be present, and less private stock would inadvertently travel these trails unaware of the trail conditions.

Cumulative Effects

Table 3.2 documents other past, present and reasonably foreseeable future actions that that may also have an impact on other resources analyzed in Chapter 3. This section will discuss the incremental impacts to trail stability of the actions listed in this table. The geographic boundary of this cumulative effects analysis is the edges of the trail tread on the trail network (both system trails and use trails) used by commercial pack stations within the boundary of the project area, and the edges of the trail tread of all system trails within the Dinkey Lakes Wilderness. The time frame of the analysis for future actions is 20 years, the length of the proposed action SUP.

Past Actions and Present Actions

Unmanaged livestock grazing from the 1800s to 1930s has no lingering effects to trail stability. Any trails that were created from cattle grazing that ended in the 1930s have naturalized. Trails are currently impacted by cattle grazing in the Kaiser and Dinkey Lakes Wildernesses. These cumulative effects are discussed below in the specific analysis units within which grazing occurs.

The 2005 Pack Stock Management Plan addresses trails within the John Muir and Ansel Adams Wildernesses, but has an effect on some trails outside of these wildernesses. Non-wilderness sections of trails that cross from non-wilderness areas into the John Muir of Ansel Adams Wildernesses would be maintained to the same management and maintenance standards as the wilderness sections of the same trail, which would ensure the stability of the non-wilderness portions of these trails. For example, the wilderness section of the Mono Creek Trail is managed at a TC3 level, as prescribed in the 2005 Pack Stock Management Plan. Therefore, the non-wilderness section of this trail between the Mono Creek Trailhead and the John Muir Wilderness boundary would also be managed at a TC3 level, even though there is no trail plan for non-wilderness trails. The 2005 Pack Stock Management Plan assigned trail classes that would ensure stability of all trails within the John Muir and Ansel Adams Wildernesses if the trails are managed and maintained at the designated levels. Therefore, the 2005 Pack Stock Management Plan would have a cumulative effect on the non-wilderness trails in this alternative that lead into the John Muir or Ansel Adams Wildernesses by ensuring stability on these trails, if the resources are available to manage and maintain the trails. If sufficient resources are not available to manage and maintain the trails to the standards prescribed by the 2005 Pack Stock Management Plan, this alternative would have the effect of causing a less rapid decline in trail stability on trails that have risk factors present when compared to Alternatives 2 and 3 because of the lack of commercial stock on these trails under this alternative.

Fire suppression within the boundaries of this project can have a cumulative impact on trails. If fire suppression activities are occurring proximal to any of the trails within the scope of this analysis, it is possible that the fire suppression team will choose to use the trails as a fire line. Typically, this involves clearing brush, limbs and logs from trails and clearing the trail tread down to mineral soil. In general, the work performed by fire suppression team on trails would have a positive impact on trail stability by clearing logs and debris off of trails that could cause trail users to create new use trails that bypass obstacles in the trail. Since use trails are not designed to any standards (they are simply the result of repetitive use by visitors), they tend to create unstable trails. Fire suppression team that clear obstacles from trails, and therefore allow visitors to stay on the designed system trail instead of creating use trails, have a cumulative positive effect on trail stability. In rare circumstances, fire suppression activities can have an adverse impact to trails. This occurs when it is necessary to remove wooden water diversion structures from trails. Since the removal of any water diversion structure from a trail tends to allow more water to remain captured within the trail tread, more erosion is likely to occur and the trail will decrease in stability. This circumstance is rare within the project area, though, as most water diversion structures are built from rock. Overall, fire suppression activities have a positive impact to trail stability for the reason described above.

Routine trail maintenance activities have a positive cumulative effect on trail stability of system trails only. Routine trail maintenance activities include clearing obstacles from trails, cleaning and reconstructing water diversion structures, and repairing various forms of rock steps. All of these actions are intended to improve trail stability by decreasing erosion and the amount of water caught in the trail tread, as well as encouraging visitors to stay on the system trail tread instead of creating use trails by avoiding obstacles in the trail. Routine trail maintenance activities do not include the construction, reconstruction or re-rerouting of entire sections of trail. Routine trail maintenance activities occur in every analysis unit that contains systems trails. System trails that receive more use generally receive more frequent maintenance than those that receive little use, and where trail classes are applicable trails with higher trail classes receive more maintenance than trails with lower trail classes. Routine trail maintenance does not occur on use trails, and therefore has no effect on use trails. Overall, routine trail maintenance activities have a positive cumulative effect on trail stability.

Motorized vehicle use (OHV, OSV) has a cumulative effect on trail stability in some analysis units. That effect is addressed in the Environmental Consequences portion of each individual analysis unit. If there is no cumulative effect from motorized vehicle use, then it is not addressed.

The reissue of special use permits has a cumulative effect on trail stability. The only special use permits (besides commercial pack stations special use permits) that affect trail stability are permits that authorize for outfitting and guiding on the Sierra National Forests. Of all of the activities undertaken by the outfitters and guides, hiking and backpacking are the only activities that would have an effect on trail stability. The amount of hiking and backpacking use on the trails within the project area is minimal

when compared to the total amount of hiker and backpacker use from private visitors. Since impacts to trail stability decrease asymptotically as use increases, it is unlikely that outfitters and guides have any more than a minimal effect on the cumulative trail stability of trails within the project area.

Other recreational activities affect have cumulative effects on trail stability. The effects of non-motorized use on trail stability are described above in the "Direct and Indirect Effects Common to All Alternatives". The effects of motorized use on trail stability are described in the Environmental Consequences portion of each individual analysis unit, if there are effects related to motorized use.

Wilderness management activities have a cumulative effect on trail stability in the Kaiser and Dinkey Lakes Wildernesses. These include analysis units KAI, COO, DIL, HEL and NEL. The primary wilderness management action that affects trail stability in these areas is the trailhead quotas that limit the amount of overnight use allowed at one time in these areas. Ultimately, this also limits the total use over the course of a year. Limiting use has some positive effect, thought not a large one, on trail stability. As trail use increases, soil erosion on unstable trail increases, but it increases asymptotically, not directly proportionately, to the amount of use. Therefore, the initial use on a trail has the greatest effect on soil loss, and as use continues to increase the magnitude of the effect per person diminishes. By limiting use, the greatest impact to trail stability (the initial use) is still allowed, but the excessive use is not allowed. Trailhead quotas, then, have a positive effect on trail stability by eliminating the excessive use and some small increase in soil erosion on trails.

Future Actions
Future actions that may have a cumulative effect on the stability of trail in the analysis area are identical to ongoing present activities. These activities include commercial cattle grazing, trail maintenance, wilderness management, fire suppression, special use permit renewals, recreation activities by forest visitors. The cumulative effects of these activities are identical to the effects described above in the "Past and Present Effects" discussion.

3.1.3.4 Analysis Unit Level Evaluation

NELDER (NED)

Affected Environment

Yosemite Trails Pack Station (YTPS) operates on a network of system and use trails that mainly extend from the pack station toward YNP to the north and east to Fish Camp, CA. The boundary of YNP is between three and fifteen miles from the pack station headquarters on Jackson Road.

Thirteen system trails travel for 20.1 miles through this AU. Most are used by YTPS. Four system trails totaling 6.8 miles in this AU are used to access Yosemite National

Park: the Quartz Mountain Trail (23E08), the Chiquito Pass Trail (23E01), the Iron Creek Trail (20E04) and the Grizzly Creek Trail (23E03).

The primary system trails used by YTPS in the NED AU are mostly in the north and south sections of the AU. The trails in the northern section access non-wilderness destinations in and around White Chief Mountain or Yosemite National Park. Trails in the southern section are in and around the Nelder Grove area. YTPS uses these trails for day rides, spot and dunnage trips, and full-service trips. All of these trails are also used by hikers and private equestrians.

YTPS also uses 27 use trails that run for 21.0 miles in the AU. The majority of the use trails are within four miles of the pack station headquarters. This complex of trails includes ½ hour, 1 hour, 2 hour, ½ day and full day rides for a large number of clients. These use trails are sometimes combined with system roads. They are used almost exclusively by YTPS, with some private equestrian, hiking, biking, and OHV use as well.

The terrain in the NED AU is varied. In some areas, lack of trail maintenance on use trails has resulted in erosion, and compaction. In other areas, both system and use trails are mostly stable. It should be noted that what little trail maintenance work done on both system and use trails in the NED AU has mostly been accomplished by YTPS or volunteer groups. Little to no funding has been available to bring these trails up to standard.

Seventeen segments of systems trails received trail assessments in this AU, and 10 were assessed to be unstable in their current condition. The instability in these trails is due to unstable stream crossings and the loss of soil from the trail tread into the stream channel. The remainder of the system trails in this AU that were not assessed has similar instability problems, though it is probable that some are stable for the duration of the trail segment.

Twenty segments of use trails received trail assessments in this AU, and 13 were assessed to be unstable in their current condition. Like the system trails, the instability on use trails in this AU is primarily related to unstable stream crossings.

Environmental Consequences

Alternative 1

Direct Effects

System trails in the area would still receive some private equestrian use, but the level of stock traffic would be expected to drop. Hiker traffic would be expected remain at present use levels. In areas where risk factors exist, long-term stabilization of trail tread and erosion would be expected with minor trail maintenance. In others areas that contain few risk factors, short-term and long-term trail stability would not be expected to increase.

The stability of use trails in the area would be expected to increase in the short-term and long-term, as the overall level of use on these trails would drop. Some use trails would

become obsolete, allowing them to naturalize over time. On use trails still used by private equestrians, hikers, cyclists and OHVs, trail stability would be expected to increase, though not to the point of naturalization. It is possible that on use trails used by OHVs and cyclists, stability could decrease if trail maintenance that is currently provided by YTPS ceases, and impacts continue to occur.

In all cases, trails that are currently unstable would likely not see increased stability until structures are put in place to stabilize the trail. Until this occurs, the trails would continue to remain unstable even with the removal of commercial pack stock.

Indirect Effects

There may be increased mountain bike activity on one trail within this AU due to the removal of commercial stock. This activity might increase because currently there is currently some use conflict between mountain bikes and commercial stock users on some trails in this AU. Even with an increase in mountain bike use, the trails in the AU would still see an increase in stability over time, but not as large of an increase as if there was no additional mountain bike use.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects described in the Overview of Environmental Consequences section, motorized vehicle use has cumulative effects to trail stability in this AU. Ongoing motor bike use is light on the trails in this AU, but will continue to have negative effects on the stability of these trails, as motor bikes loosen soils and make them available for transport at a greater level than hikers or mountain bikers. Therefore, continued use of the trails by motor bikes will have an adverse effect on trails stability in this AU.

Alternative 2

Direct Effects

The system trails in the NED AU would remain in their current condition, as use patterns are expected to remain the same. The addition of commercial stock (when compared to Alternative 1) to these trails would cause minimal additional impacts to trail stability in areas with low risk factors. In areas with higher risk factors, the addition of commercial stock (when compared to Alternative 1) would also be expected to cause continuing impacts to trail stability until these trails are stabilized or repaired. It is likely that with or without the addition of commercial pack stock (when compared to Alternative 1), these system trails with risk factors will see further degradation of stability if not maintained.

Approved use trails (17 trails, 12.1 miles) in the NED AU would remain in their current condition, as use patterns are expected to remain the same. The addition of commercial stock (when compared to Alternative 1) to these use trails would cause minimal additional impacts to trail stability in areas with low risk factors. In areas with higher risk factors or where current instability exists, the addition of commercial stock (when

compared to Alternative 1) would also be expected to cause continuing impacts to trail stability until these trails are stabilized or repaired. This repair would be less likely than on system trails because appropriated trail maintenance funds cannot be spent on use trails. It is likely that with or without the addition of commercial pack stock (when compared to Alternative 1), these use trails with risk factors will see further degradation of stability if not maintained. Prohibited use trails (6 trails, 5.7 miles) would be expected to naturalize over time, though some may persist due to low levels of hiker, private equestrian and cyclist use.

Four use trails that have historically been used by YTPS were inadvertently left out of this alternative, and are therefore inherently not approved for use. These four trails are included in Alternative 3.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, motorized vehicle use has cumulative effects to trail stability in this AU. Ongoing motor bike use is light on the trails in this AU, but will continue to have negative effects on the stability of these trails, as motor bikes loosen soils and make them available for transport at a greater level than hikers or mountain bikers. Therefore, continued use of the trails by motor bikes will have an adverse effect on trails stability in this AU.

Alternative 3

Direct Effects
The system trails in the NED AU would remain in their current condition, as use levels and use patterns are expected to remain the same as current use levels and patterns, which is the same as Alternative 2. The addition of commercial stock (when compared to Alternative 1) to these trails would cause minimal additional impacts to trail stability in areas with low risk factors. In areas with higher risk factors, the addition of commercial stock (when compared to Alternative 1) would also be expected to cause continuing impacts to trail stability until these trails are stabilized or repaired. It is likely that with or without the addition of commercial pack stock (when compared to Alternative 1), these system trails with risk factors will see further degradation of stability if not maintained.

In this alternative, two additional use trails would be approved for that would not be approved in Alternative 2 (19 trails in total, 14.0 miles in total). These trails were not considered in Alternative 2 because they were inadvertently left off of the use trails network that is currently used by YTPS. The addition of commercial stock (when compared to Alternative 1) to these use trails would cause minimal additional impacts to trail stability in areas with low risk factors. In areas with higher risk factors, the addition

of commercial stock (when compared to Alternative 1) would also be expected to cause continuing impacts to trail stability until these trails are stabilized or repaired. This repair would be less likely than on system trails because appropriated trail maintenance funds cannot be spent on use trails. It is likely that with or without the addition of commercial pack stock (when compared to Alternative 1), these use trails with risk factors will see further degradation of stability if not maintained. Two additional use trails are prohibited that were not addressed in Alternative 2 (8 use trails prohibited in total, 7.0 miles of use trails prohibited in total). The prohibited use trails would be expected to naturalize over time, though some may persist due to low levels of hiker, private equestrian and cyclist use.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, motorized vehicle use has cumulative effects to trail stability in this AU. Ongoing motor bike use is light on the trails in this AU, but will continue to have negative effects on the stability of these trails, as motor bikes loosen soils and make them available for transport at a greater level than hikers or mountain bikers. Therefore, continued use of the trails by motor bikes will have an adverse effect on trails stability in this AU.

CLOVER (CLO)

Affected Environment

Minarets Pack Station (MPS) operates on a network of system and use trails that mainly extend from the pack station toward the Ansel Adams Wilderness. Generally, the wilderness boundary is greater than three miles from the pack station headquarters at Miller Meadow.

There are 18 system trails totaling 28.9 miles within the CLO AU. The primary system trails used by MPS in the CLO AU (Mammoth 26E01, Isberg 24E01, California Riding and Hiking Trail 24E03, and Norris 24E25) all access the northwestern portion of the Ansel Adams Wilderness. All of these trails are also used by hikers and non-commercial stock use. MPS uses these trails for day rides, spot and dunnage trips, and full-service trips into wilderness. A stock driveway (Trail 25E06) used by grazing allotment permittees starting at Miller Meadow and ending at Bass Lake is used occasionally (2 or less times/year) for pack station clients to accompany authorized cattle drives in the spring and fall of the year. MPS does not use this stock driveway to access non-wilderness destinations.
MPS also uses eight use trails totaling 3.5 miles in the AU. A network of use trails outside the wilderness (CLO02, CLO07, CLO08) near the pack station headquarters is

used for day rides near Miller Meadow. All other use trails are located as access to the main system trails entering the wilderness; these are often combined with system roads to travel from the pack station to the trailheads. These use trails are almost exclusively used by MPS, with some private equestrian use occurring as well.

Seven system trails received trail assessments in this AU (Frog Meadow Trail 24E41, Mammoth Trail 26E01, Miller Meadow Trail 24E26, Clover Trail 24E40, Walton Trail 24E20, California Riding and Hiking Trail 24E03 and Norris Lake Trail 24E25). Of these trails, only the Norris Lake Trail was identified to have trail stability concerns. The trail runs parallel to Norris Creek, and there is continuous loss of sediment into the creek along almost the entire length of the trail. This loss of soil is causing instability in the trail tread. The remainder of the trails assessed were determined to be stable. The terrain in the CLO AU tends to be moderate, and remainder of the system trails that were not assessed are generally stable due to few risk factors being present.

Two use trails in this AU received trail assessments (the network of CLO02, CLO07 and CLO08, as well as CLO05). Neither of these trails were identified to have trail stability concerns. Like the system trails, the remainder of use trails in this AU that did not receive trail assessments are generally stable due to few risk factors being present.

Environmental Consequences

Alternative 1

Direct Effects

System trails in the area would still receive some administrative and private equestrian use, but the level of stock traffic would drop. Hiker traffic would be expected remain at present use levels. Because there are few risk factors present on the system trails in this AU, the stability of the trails would not be expected to increase over the short-term or long-term. The Norris Lake Trail would continue to be unstable until repaired, even without the presence of commercial stock. In select areas where risk factors, in particular trail grade, are greater, a long-term increase in trail stability would be expected, particularly with adequate maintenance.

Use trails in the area would see a drop in total use, and would naturalize over time, as there are very few private equestrians or hikers that use these trails.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 2

Direct Effects

The system trails within the CLO AU would remain in their current condition, as use patterns are expected to remain the same. The Norris Lake Trail would continue to be

unstable until repaired. Since few risk factors are present on the system trails in this AU, the remainder of the system trails would not be an expected degradation of trails in this AU over time. These trails currently see hiker and private equestrian use as well.

Approved use trails (3 trails, 1.1 miles) in the CLO AU would remain in their current condition, as use patterns are expected to remain the same, and few risk factors are present. There would be no expected degradation of trail stability. The addition of commercial stock (when compared to Alternative 1) to these use trails would be expected to cause the continued presence of the stable trails. Without the addition of commercial stock (when compared to Alternative 1) to these trails, they would likely see little use and would naturalize over time. Some would be expected to persist due to low levels of hiker, private equestrian and cyclist use. Prohibited use trails (5 trails, 2.4 miles) would be expected to naturalize over time, as little other use is present on these trails. Some may persist due to low levels of private equestrian use. There would be no expected change to trail stability, as these trails are currently stable.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 3

Direct Effects
The system trails within the CLO AU would remain in their current condition, as use levels and use patterns are expected to remain the same. The Norris Lake Trail would continue to be unstable until repaired. Since few risk factors are present on the system trails in this AU, the remainder of the system trails would not be an expected degradation of trails in this AU over time. These trails currently see hiker and private equestrian use as well.

The number and mileage of use trails approved and prohibited in this alternative is identical to the Proposed Action (Alternative 2). Approved use trails (3 trails, 1.1 miles) in the CLO AU would remain in their current condition, as use patterns are expected to remain the same as the present, and the same as would occur under Alternative 2, and few risk factors are present. There would be no expected degradation of trail stability. The addition of commercial stock (when compared to Alternative 1) to these use trails would be expected to cause the continued presence of the stable trails. Without the addition of commercial stock (when compared to Alternative 1) to these trails, they would likely see little use and would naturalize over time. Some would be expected to persist due to low levels of hiker, private equestrian and cyclist use. Prohibited use trails (5 trails, 2.4 miles) would be expected to naturalize over time, as little other use is present on these trails. Some may persist due to low levels of private equestrian use. There would be no expected change to trail stability, as these trails are currently stable.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

EDISON (EDI)

Affected Environment

High Sierra Pack Station (HSPS) operates on a network of roads, system trails and use trails that extend outward from the pack station towards the boundaries of the Ansel Adams and John Muir Wilderness areas like spokes from a wheel. Generally, the wilderness boundaries lie within one mile of the pack station, although the Onion Springs Road and the Mono Creek Trail along the north shoreline of Lake Thomas A. Edison require longer trips on non-wilderness trails to reach the wilderness boundaries.

There 10 system trails totaling 8.1 miles within the EDI AU. The primary system trails used by HSPS in the EDI AU are the High Sierra Pack Station Trail (29E01A), which accesses the Mono Creek Trail (28E27) from the pack station; the Mono Creek Trail, which accesses the Mono Creek area of the John Muir Wilderness; the Goodale Pass Trail (28E20), which accesses the Graveyard Meadow and Goodale Pass areas of the Ansel Adams and John Muir Wildernesses; and the Devil's Bathtub Trail (27E03), which accesses the Devil's Bathtub area of the Ansel Adams and John Muir Wildernesses. All of these trails are used heavily by hikers, moderately by HSPS, and lightly by non-commercial packers with the exception of the High Sierra Pack Station Trail, which is used almost exclusively by HSPS to access their pack station from the Mono Creek Trail. HSPS uses these trails for day rides into wilderness, spot and dunnage trips into wilderness, and full-service trips into wilderness. There are no destinations in the non-wilderness areas in this AU, thereby making trails in this AU access routes into wilderness.

HSPS also uses 8 use trails in the AU totaling 3.9 miles. Use trails access the Saddle Mountain area of the Ansel Adams Wilderness (EDI01, used during hunting season), the Twin Meadow area of the Ansel Adams Wilderness (EDI01 and EDI02, used for one- and two-hours loop rides) and the Bear Ridge area of the John Muir Wilderness (EDI03, EDI04, EDI05, EDI06, EDI07 and EDI08, for spot and dunnage or full-service trips). These use trails are almost exclusively used by HSPS, though the use trails accessing Bear Ridge are also used by D&F.

D&F operates a spike station out of this AU, but their use is low out of this spike station. Primarily, D&F uses the roads and use trails in the area of Edison Dam to access the Bear Ridge area of the John Muir Wilderness.

HSPS and D&F also use the roads within this AU to move stock between their corrals and various trailheads. In addition, HSPS occasionally uses the Kaiser Pass Road in this

AU to move stock between the Mono Hot Springs tourist pasture and the corrals at their headquarters. The impact to the roads in this AU by commercial pack stations are negligible compared use and impact to the roads in this AU by private vehicles and private trailers.

Three system trails received trail assessments in this AU (Devil's Bathtub Trail 27E03, Warm Creek Trail 27E46, and Mono Meadow Trail 27E21). None of these trails were identified to have trail stability concerns (though the Devil's Bathtub Trail has concerns inside of the Ansel Adams Wilderness). The terrain in the EDI AU tends to be moderate, and the remainder of the system trails that did not receive trail assessments are generally stable due to few risk factors being present.

Three use trails in this AU received trail assessments (EDI01, EDI02, and EDI08). None of these trails were identified to have trails stability concerns (though EDI02 becomes ONS02 in the Ansel Adams Wilderness and has concerns there). Like the system trails, the remainder of the use trails in this AU that did not receive trail assessments are generally stable due to few risk factors being present.

The most significant impacts to trails in this AU are from cattle associated with the Mono allotment. A significant number of cattle trails form a spider web of trails in the Cold Creek area, creating a confusing network of trails for users and substantial resource damage relative to pack stock or hikers.

Environmental Consequences

Alternative 1

Direct Effects

The system trails in this AU would see a drop in stock use, though some administrative use and private equestrian use would continue to occur. Hiker use would remain heavy, particularly on the Mono Creek Trail, Goodale Pass Trail and Devil's Bathtub Trail. Since relatively few risk factors are present on the system trails in this AU, there would not be an expected increase in trail stability over the short-term or long-term. The one system trail that would be expected to increase in stability, and eventually naturalize, would be the High Sierra Pack Station Trail, which is currently almost exclusively used by HSPS.

Most use trails in this AU would be expected to increase in stability and naturalize over the long-term, since they are used almost exclusively by commercial pack stock. The exception to this is in the Mono cattle allotment near Cold Creek, where a spider web of use trails would continue to be present and create resource damage related to cattle and hikers (see Cumulative Effects, below).

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, ongoing cattle grazing use has cumulative effects to trail stability in this AU. The Mono allotment overlaps with the northwestern portion of this AU, and cattle use both system and use trails in the area surrounding the HSPS headquarters. In particular, use trails EDI01 and EDI02, and system trail 27E18 are used by cattle. Cattle have an adverse effect on trail stability for similar reasons as stock, primarily the churning of top layers of soil and compaction of lower layers of soil, making the top soil more available for transport via wind or water erosion.

Alternative 2

Direct Effects

The system trails in the EDI AU are currently stable, and would be expected to remain stable under this alternative, as use patterns would be expected to remain the same. The addition of commercial stock (when compared to Alternative 1) to the system trails would not change trail conditions, as the trails would still see heavy use from hikers and low use from private equestrians. The addition of commercial stock (when compared to Alternative 1) to the High Sierra Pack Station Trail would allow the trail to continue to persist in a stable state. Without the addition of commercial stock (when compared to Alternative 1) to this trail, the trail would likely see very little use, and would naturalize over time. The addition of commercial stock (when compared to Alternative 1) to the Onion Springs Road would not have any additional effect on the condition of the road, as the impacts to this road are defined by vehicular traffic.

Approved use trails in this AU (6 trails, 2.9 miles) would be expected to remain in their current stable condition. The addition of commercial stock (when compared to Alternative 1) to these trails would have no effect on trail stability because the trails are currently stable under the same use levels as would occur under this alternative. Prohibited use trails (2 trails, 1.0 miles) would be expected to naturalize over time, as they see little use from other user groups.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, ongoing cattle grazing use has cumulative effects to trail stability in this AU. The Mono allotment overlaps with the northwestern portion of this AU, and cattle use both system and use trails in the area surrounding the HSPS headquarters. In particular, use trails EDI01 and EDI02, and system trail 27E18 are used by cattle. Cattle have an adverse effect on trails stability for similar reasons as stock, primarily the churning of top layers of soil and compaction of lower layers of soil, making the top soil more available for transport via wind or water erosion.

Alternative 3

Direct Effects

The system trails in the EDI AU are currently stable, and would be expected to remain stable under these alternatives, as use patterns would be expected to remain the same. The addition of commercial stock (when compared to Alternative 1) to the system trails would not change trail conditions, as the trails would still see heavy use from hikers and low use from private equestrians. The addition of commercial stock (when compared to Alternative 1) to the High Sierra Pack Station Trail would allow the trail to continue to persist in a stable state. The addition of commercial stock (when compared to Alternative 1) to the Onion Springs Road would not have any additional effect on the condition of the road, as the impacts to this road are defined by vehicular traffic.

The number and mileage of use trails approved and prohibited in this alternative is identical to Alternative 2. Approved use trails in this AU (6 trails, 2.9 miles) would be expected to remain in their current stable condition. The addition of commercial stock (when compared to Alternative 1) to these trails would have no effect on trail stability because the trails are currently stable under the same use levels as would occur under this alternative. Prohibited use trails (2 trails, 1.0 miles) would be expected to naturalize over time, as they see little use from other user groups.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, ongoing cattle grazing use has cumulative effects to trail stability in this AU. The Mono allotment overlaps with the northwestern portion of this AU, and cattle use both system and use trails in the area surrounding the HSPS headquarters. In particular, use trails EDI01 and EDI02, and system trail 27E18 are used by cattle. Cattle have an adverse effect on trails stability for similar reasons as stock, primarily the churning of top layers of soil and compaction of lower layers of soil, making the top soil more available for transport via wind or water erosion.

CHINQUAPIN (CHQ)

Affected Environment

HSPS and MTR operate on the trails and roads within the CHQ AU. The CHQ AU, however, receives very little use by commercial packstations. The primary use by commercial pack stations in this AU is on roads, specifically the Kaiser Pass Road and Florence Lake Road. These roads are used as a stock driveway once at the beginning of the summer and once at the end of the summer by MTR. The use by MTR is exclusively between High Sierra Work Center and Florence Trailhead. HSPS uses the Kaiser Pass

Road as a stock driveway between Badger Flat and Mono Hot Springs tourist pasture occasionally. The impact to these roads by both MTR and HSPS is negligible compared to the very heavy use of these roads by private vehicles and private trailers.

There are 2.6 miles of system trails within this AU. The system trails in this AU are used primarily by hikers. The Corbett Lake Trail (27E69), which is used heavily by hikers, is used infrequently by HSPS for hunting access in the fall. There is no use by commercial pack stations of the Mono Hot Springs Trail (27E25) or the Soda Springs Trail (27E75).

There are no use trails in this AU.

No system or use trails in this AU received trail assessments. Trails in this AU are on fairly steep terrain but are stable at the present time because of appropriate construction to mitigate risk factors.

Environmental Consequences

Alternative 1

Direct Effects

The system trails in the AU would not be expected to see a drop in use, as they are infrequently used by commercial pack stations. As the system trails in this AU are currently stable, there would be no expected change in trail stability. The Kaiser Pass Road and Florence Lake Road, currently used as stock driveways at the beginning and end of the summer by HSPS and MTR, would not be expected to see any change in their stability.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 2

Direct Effects

The system trails in this AU are currently stable and would be expected to remain stable under these alternatives. Currently, these system trails are little-used by commercial stock, and would be expected to remain stable even with the addition of commercial stock. The only trail with risk factors is the Corbett Lake Trail (steep grade in certain locations), and this design and layout of this trail would be expected to allow for continued trail stability under low levels of commercial stock use. The addition of commercial stock (when compared to Alternative 1) to the Kaiser Pass Road and Florence Lake Road, both which would be used for commercial stock drives, would have no impact to the roads, as the definitive impact to these roads is from vehicular traffic.

There are no use trails in this AU.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 3
Direct Effects
The system trails in this AU are currently stable and would be expected to remain stable under these alternatives. Use levels and use patterns of commercial stock in this AU are expected to remain the same as at present, and the same as in Alternative 2. Currently, these system trails are little-used by commercial stock, and there would be no expected change in trail stability with the addition of commercial stock (when compared to Alternative 1). The only trail with risk factors is the Corbett Lake Trail (steep grade in certain locations), but the design and layout of this trail would be expected to allow for continued trail stability under low levels of commercial stock use. The addition of commercial stock (when compared to Alternative 1) to the Kaiser Pass Road and Florence Lake Road, both which would be used for commercial stock drives, would have no impact to the stability of the roads, as the definitive impact to these roads is from vehicular traffic.
There are no use trails in this AU.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

FLORENCE (FLO)

Affected Environment
HSPS, LVPS, D&F and MTR all operate on trails within the FLO analysis unit. The trails in this AU, however are very limited with only seven system trails which total 0.9 miles, and only two use trails (FLO02 from LVPS spike station to the Florence Ferry Landing Trail and FLO01 from HSPS spike station to the Florence Lake Road) totaling 0.4 miles.

All system trails in this AU are used by commercial pack stations to access the John Muir Wilderness. The trail that is the most frequently used by commercial packstations in this AU is the Florence Lake Trail (27E81), which is heavily used by hikers. While the Florence Ferry Landing Trail (28E25) receives very heavy use from hikers exiting the ferry across Florence Lake, it sees little use from commercial pack stations. The Crater Lake Trail (27E05), Poison Meadow Trail (27E26), Hell Hole Trail (27E04) and Hooper Diversion Trail (28E45) receive low use from hikers, commercial pack stations and non-

commercial stock users. The Jackass Interpretive Trail (27E60) receives moderate use from hikers and no use from commercial pack stations.

Three system trails received trail assessments in this AU (Crater Lake Trail 27E05, Poison Meadow Trail 27E26 and Florence Lake Trail 27E81), and none were identified to have trail stability concerns. The terrain is relatively rugged compared to the nearby EDI AU. However, the Florence Lake Trail, which received the most commercial pack station use, is stable, relatively flat and has few risk factors. The most sensitive trail in the AU is Crater Lake Trail, which is steep and has some erosion problems in this AU, though the trail assessment of this trail identified the trail as stable. The primary factors leading to the erosion problems on this trail are lack of maintenance and steep terrain. It is not likely that commercial pack stations have contributed significantly to the problems on this section of trail, as their use of this trail is infrequent.

No use trails were assessed in this AU, but the 0.4 miles are use trails that are present are currently in stable condition and on moderate terrain with no risk factors.

Environmental Consequences

Alternative 1

Direct Effects

The system trails in this AU are currently stable, and all would be expected to remain stable under this alternative. The Florence Lake Trail, which is the only system trail in the AU which receives more than incidental commercial pack station use, is currently stable and would not be expected to see an increase in trail stability with the removal of commercial pack stations. All other system trails in this area would be expected to see no change in their stability, as they are lightly used by commercial pack stations.
The two use trails in this area, which lead from commercial pack station spike stations to system trails, are almost exclusively used by commercial pack station and would be expected to naturalize over time and retain stability (they are currently in stable condition).

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 2

Direct Effects

The system trails in this AU are currently stable, and all would be expected to remain stable under this alternative, as use patterns would be expected to remain the same as present use patterns. The addition of commercial stock (when compared to Alternative 1) would primarily occur on the Florence Lake Trail, though all other trails would receive a small amount of commercial stock use. The addition of commercial stock (when compared to Alternative 1) to the Crater Lake Trail would likely cause additional erosion

and incision along the part of the trail in this AU, possibly throwing the trail into an unstable condition if adequate maintenance is not performed. Currently, the trail receives a moderate level of hiker traffic and a low level of private equestrian use.

Approved use trails in this AU (2 trails, 0.4 miles) would remain in their current stable condition. The addition of commercial stock (when compared to Alternative 1) to these trails would allow them to persist in their current stable condition.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 3

Direct Effects
Because use patterns in this AU would be expected to remain the same in this alternative as in Alternative 2, and because all system trails and use trails in this AU received the same approvals for commercial pack stations use, the direct effects of this alternative are identical to those in Alternative 2.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

KAISER (KAI)

Affected Environment

D&F is the only commercial pack station to operate within this AU, which encompasses the entire Kaiser Wilderness.

Trails in the Kaiser Wilderness receive moderate to heavy use, as several trailheads are easily accessible from Huntington Lake, and many areas within the wilderness are accessible in one day. There are many steep trails that lack adequate drainage, cut through meadows and wet areas, and lack general maintenance. Since these trails have received minimal maintenance and repairs in recent years, trails with even moderate use show some signs of instability, especially where risk factors such as steepness or meadow environs are present.

Most trail use is concentrated on the south side of the AU because of its proximity to Huntington Lake. The majority of use on these trails is from hikers accessing the lakes along Kaiser Ridge. Private equestrian use occurs at moderate levels on the California

Riding & Hiking Trail between Badger Flat and Twin Lakes. The California Riding & Hiking Trail, Twin Lakes Loop Trail and Kaiser Loop Trail receive the heaviest use of all trails in this AU.

Fourteen system trails totaling 29.4 miles are within the KAI AU. D&F, which has its headquarters at the Deer Creek Trailhead, uses most system trails within this AU, but primarily uses the California Riding & Hiking Trail (24E03) and the Twin Lakes Loop (26E31) to access spot and dunnage campsites along Kaiser Ridge.

There are a total of two use trails totaling 1.1 miles that are used by D&F in this AU. D&F also has historically used the two use trails in this AU, one as a shortcut to Twin Lakes (KAI01) and one to access Walling Lake (KAI02). The use trail to Walling Lake is steep and has become severely eroded due to stock traffic, no structures along the trail, and the steep nature of the terrain.

Six system trails received trail assessments in this AU (part of California Riding and Hiking Trail 24E03, part of Twin Lakes Loop 26E31, part of George Lake Trail 26E62, Marys Meadow Trail 27E41, Nellie Lake Trail 25E58, and part of Kaiser Loop Trail 26E06). Two of these trails were identified to have trail stability concerns. The section of the California Riding and Hiking Trail north of Potter Pass shows widening, multiple trailing and water capture in the trail, all of which have the potential to cause erosion and trail instability. The Marys Meadow Trail shows sediment entering Line Creek from this trail and steep, unstable soil that are eroding along the trail, causing the trail to be unstable. The remainder of the surveyed system trails indicate stable trails. The system trails that were not surveyed tend to be stable, primarily due to their relatively few risk factors and much less use than the surveyed trails.

Two use trails received trail assessments in this AU (KAI01 and KAI02). Only the Walling Lake use trail, KAI02, showed signs of trail instability. This is because of its steep grade and lack of trail design. This combination has led to soil loss on steep portions of the trail, though this trail has no hydrologic connectivity, and therefore the erosion does not affect water quality.

Environmental Consequences

Alternative 1

Direct Effects

System trails within this AU currently receive low levels of use by D&F, and would be expected to see an increase in stability with the removal of commercial pack stock. Private equestrian use would be expected to continue to occur at a low level, and occasional administrative stock use would continue to occur. Because risk factors exist on many system trails within the Kaiser Wilderness, a minor increase in trail stability would be expected to occur on all trails from the removal of commercial pack stock; however the improvement in stability would not be directly proportional to the reduction in pack stock use. Since the use/impact curve is asymptotic (see Section 3.1.3.3 for further details), a moderate reduction in stock use would likely only result in a slight improvement in trail stability. Only a near total reduction on stock use would be

expected to improve trail stability. The trails in this AU that would likely see minor reductions in use are the Kaiser Loop Trail, the California Riding and Hiking Trail and the Twin Lakes Trail. Other system trails would see almost no change in both stock use and overall use, and therefore no change in trail stability. All trails would continue to receive heavy use from hikers.

The Walling Lake use trail (KAI02), which is almost exclusively used by D&F, would be expected to see improvement in trail stability if structures were installed to mitigate current resource damage from erosion. The removal of commercial pack stock would effectively remove all stock from this trail, though it would likely see continued light use from hikers. The Twin Lakes use trail (KAI01) would likely see continued use from hikers and private equestrians, though the total number of stock on this trail would be expected to decrease. Since the trail currently is in stable condition, there would be no expected improvement to trail stability.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, ongoing cattle grazing use has cumulative effects to trail stability in this AU. The Kaiser allotment overlaps with the southwestern portion of this AU, and cattle use system trails in the area. In particular, the Nellie Lake Trail and the Home Creek Trail are used by cattle. Cattle have an adverse effect on trail stability for similar reasons as stock, primarily the churning of top layers of soil and compaction of lower layers of soil, making the top soil more available for transport via wind or water erosion.

Alternative 2

Direct Effects
The addition of commercial stock (when compared to Alternative 1) to the system trails in this AU would have the effect of sustaining the current state of trail stability within the KAI AU. The California Riding and Hiking Trail north of Potter Pass and the Mary's Meadow Trail, both of which are currently in an unstable condition, would see continued erosion and incision in isolated locations, resulting in decreasing trail stability. All other system trails would likely see no change in their condition, as they are currently in a stable state.

The Walling Lake use trail is the only approved use trail in this AU (0.7 miles), and would see a continued degradation of trail stability with the addition of commercial stock (when compared to Alternative 1). Because stock are not permitted within ¼ mile of Walling Lake without a special use permit, the special use permit to allow access to this lake would be issued with the D&F operating permit in this alternative only after this trail is stabilized to prevent further degradation of trail stability. Commercial stock use is

currently the only significant use this trail receives. Without the addition of commercial stock (when compared to Alternative 1), the trail would be expected to stabilize with minimal maintenance, and naturalize over time if hiker or private equestrian traffic did not increase. Because this is a use trail, appropriated trail maintenance funding may not be used to improve the stability of this trail, and so if commercial stock are added to the trail (or even if they are not), other funding sources would have to be used to stabilize the trail (use by commercial pack stations would be conditional on trail being repaired in these alternatives). The Twin Lakes use trail is prohibited in this alternative because it is a duplicate access trail (the Twin Lakes Loop system trail provides access to the same area). It is the only prohibited use trail in this AU (0.4 miles), and would be expected to persist in its current stable state due to low levels of use by hikers.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, ongoing cattle grazing use has cumulative effects to trail stability in this AU. The Kaiser allotment overlaps with the southwestern portion of this AU, and cattle use system trails in the area. In particular, the Nellie Lake Trail and the Home Creek Trail are used by cattle. Cattle have an adverse effect on trail stability for similar reasons as stock, primarily the churning of top layers of soil and compaction of lower layers of soil, making the top soil more available for transport via wind or water erosion.

Alternative 3

Direct Effects
In this alternative, use patterns and levels of commercial pack stock within the KAI AU are expected to remain the same as current, and the same as in Alternative 2. This is because the destination zones and overnight stock camps designated in this alternative are based upon both current use levels and patterns, and historic use levels and patterns. This alternative essentially locks in the current use levels and patterns, and does not allow for any potential expansion of use to other areas within this AU in the future. Therefore, the effects of this alternative on trail stability are identical to those in Alternative 2, since there are no differences in use trail or system trail approvals between the two alternatives.

The addition of commercial stock (when compared to Alternative 1) to the system trails in this AU would have the effect of sustaining the current state of trail stability within the KAI AU. The California Riding and Hiking Trail north of Potter Pass and the Mary's Meadow Trail, both of which are currently in and unstable condition, would see continued erosion and incision in isolated locations, resulting in decreasing trail stability. All other system trails would likely see no change in their condition, as they are currently in a stable state.

The Walling Lake use trail is the only approved use trail in this AU (0.7 miles), and would see a continued degradation of trail stability with the addition of commercial stock (when compared to Alternative 1). Because stock are not permitted within ¼ mile of Walling Lake without a special use permit, the special use permit to allow access to this lake would be issued with the D&F operating permit in this alternative only after this trail is stabilized to prevent further degradation of trail stability. Commercial stock use is currently the only significant use that this trail receives. Without the addition of commercial stock (when compared to Alternative 1), the trail would be expected to stabilize with minimal maintenance, and naturalize over time if hiker or private equestrian traffic did not increase. Because this is a use trail, appropriated trail maintenance funding may not be used to improve the stability of this trail, and so if commercial stock are added to the trail (or even if they are not), other funding sources would have to be used to stabilize the trail (use by commercial pack stations would be conditional on trail being repaired in these alternatives). The Twin Lakes use trail is prohibited in this alternative because it is a duplicate access trail (the Twin Lakes Loop system trail provides access to the same area). It is the only prohibited use trail in this AU (0.4 miles), and would be expected to persist in its current stable state due to low levels of use by hikers.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, ongoing cattle grazing use has cumulative effects to trail stability in this AU. The Kaiser allotment overlaps with the southwestern portion of this AU, and cattle use system trails in the area. In particular, the Nellie Lake Trail and the Home Creek Trail are used by cattle. Cattle have an adverse effect on trail stability for similar reasons as stock, primarily the churning of top layers of soil and compaction of lower layers of soil, making the top soil more available for transport via wind or water erosion.

EAST HUNTINGTON (HNE)

Affected Environment

D&F is the primary commercial pack station to operate within this AU. The packstation operates on a network of system and use trails. Five system trails totaling 14.9 miles wind through this AU, though only three (the Potter Creek Trail 26E35, the California Riding and Hiking Trail 24E03 and the Potter Pass Cutoff Trail 26E39) receive any use by D&F. The Potter Creek Trail and Potter Pass Cutoff Trail are used to access Potter Pass and the Kaiser Wilderness from D&F's headquarters near Deer Creek. These trails are used moderately by D&F and private hikers, and are used lightly by private equestrians. The California Riding and Hiking Trail extends in the AU from the Kaiser Wilderness boundary at Potter Pass to the Dinkey Lakes Wilderness boundary. D&F

primarily uses the section between Badger Flat on the Kaiser Pass Road and the Dinkey Lakes Wilderness boundary. This section is moderately used by both D&F and private equestrians, and lightly by private hikers. The section of the trail between Badger Flat and Potter Pass is used heavily by private hikers, and lightly by equestrians. The Rancheria Falls Trail (26E51) is used heavily by private hikers and infrequently by equestrians. Trail 26E08 leading south from Weldon's Camp to Road 8S42C receives infrequent use by all user groups.

D&F Pack Station also uses the Huntington Lakes Trail, which travels between Bear Cove and Lower Billy Creek Campground. Commercial stock use is low on this trail, while public hiking use is high. Private equastrian use is prohibited on this trail. The trail is stable condition with few risk factors.

D&F utilizes four use trails within this AU, totaling 5.9 miles. Two use trails extend from the pack station's headquarters at Deer Creek and end near a spike station at Badger Flat (HNE03 and HNE04). Both trails receive frequent use from D&F and little use from private users. Two additional use trails (HNE01 and HNE02) comprise part of D&F's day rides, and are located north of the Potter Pass Cutoff trailhead. Both use trails receive frequent use from D&F, and little use from other user groups.

Two system trails received trail assessments in this analysis unit. The Potter Creek Trail and the Potter Pass Cutoff Trail were both assessed to be unstable in their current condition. On both trails, the primary issue is stream crossings, and erosion of the trail into the stream channel at the crossings. In the summer of 2006, the High Sierra Ranger District watershed crew installed over 100 water bars on the Potter Creek and Potter Pass Cutoff Trails, where water quality was most severely affected. As a result of these efforts, trail erosion will be reduced, and soil, water and trail resources will be better protected. All other system trails in this analysis unit are currently in stable condition due to their trail design and/or flat alignments and few risk factors.

Two use trails (HNE01 and HNE02) received trail assessments in this analysis unit. Both trails were identified as stable. The remaining two use trails that did not receive trail assessments (HNE03 and HNE04) currently have few risk factors and are stable.

HSPS also operates within this AU, but only to use the Kaiser Pass Road as a stock driveway between Badger Flat and the tourist pasture at Mono Hot Springs.

Environmental Consequences

Alternative 1

Direct Effects

The Potter Creek Trail and Potter Pass Cutoff Trail in this AU are the only system trails in this AU that would be expected to see an increase in trail stability with the removal of commercial pack stock. These trails are also heavily used by hikers, and receive some private equestrian use, and so the removal of commercial pack stock would have only limited benefit to trail stability. Of greater consequence to trail stability is the recent installation of over 100 water bars on these trails, as described in the Affected

Environment section. The Rancheria Falls Trail, California Riding and Hiking Trail between Potter Pass and Badger Flat, and Trail 26E08 would not see any increase in trail stability, as they are not currently used by commercial pack stations. The California Riding and Hiking Trail between Badger Flat and the Dinkey Lakes Wilderness boundary is currently in stable condition, and would not be expected to show improvements in stability with the removal of commercial pack stock.

The use trails in this area would be expected to naturalize over time, as these trails receive little use from other user groups. The use trails between the Deer Creek headquarters and the Badger Flat spike station (HNE03 and HNE04) would likely naturalize more rapidly than the use trails around the Potter Creek area (HNE01 and HNE02), as they are less visible to other users, thereby being less susceptible to continued use.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 2

Direct Effects
The system trails most affected by the addition of commercial stock in this AU are the Potter Creek Trail and the Potter Creek Cutoff Trail. These trails are currently in an unstable condition, and the moderate use expected with the addition of commercial stock (when compared to Alternative 1) to this trail would cause increased erosion and incision, and therefore continued degradation of trail stability, without significant trail repair efforts. Current hiker and private equestrian use on this trail is moderate, but even so the additional use by commercial stock (when compared to Alternative 1) would likely degrade trail stability. The installation of over 100 water bars on these trails in the summer of 2006 (see Affected Environment) will likely improve the stability of these trails, but is independent of the addition of commercial stock (when compared to Alternative 1) to the trails. The only other trail that would be expected to receive additional commercial stock use would be the California Riding and Hiking Trail between Badger Flat and the Dinkey Lakes Wilderness boundary. This trail is currently in stable condition, and would be expected to remain in stable condition with the addition of commercial stock (when compared to Alternative 1) due to minimal risk factors. All other system trails in this AU would not be expected to receive additional commercial stock use, and therefore are not expected to see any change in trail stability due to commercial stock.

Approved use trails in this AU (HNE01, HNE02 and HNE03, totaling 3.8 miles) would be expected to persist with the addition of commercial stock (when compared to Alternative 1). One use trails that travel between the D&F's Deer Creek headquarters and Badger Flat (HNE03) are currently in stable condition, and would be expected to

remain in stable condition. The two use trails north of the Potter Pass Cutoff trailhead that are currently part of D&F's day ride loop (HNE01 and HNE02) would be expected to remain in their current stable condition. One use trail (HNE04, 2.1 miles) would be prohibited in these alternatives because it is a duplicate access route to Badger Flat, and would be expected to naturalize over time, as few if any other user groups use this trail.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 3
Direct Effects
The direct effects of this alternative on trail stability are identical to those described in Alternative 2, as use levels and patterns are not expected to change, and approval of use on system trails is identical in both alternatives.

Indirect Effects
There are no indirect effects in this alternative.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

WEST HUNTINGTON (HNW)

Affected Environment
D&F is the only commercial pack station to operate within this AU. Five system trails covering 9.8 miles are contained within this AU. Of the five system trails within this AU, only two, the Kaiser Loop Trail (26E06) and the Huntington Lake Trail (25E43), are used by the pack station. The Kaiser Loop Trail, like the portion of this trail within the Kaiser Wilderness, is used heavily by private hikers, moderately by private stock and moderately used by D&F. The Huntington Lake Trail, between Lower Billy Creek Campground and the Bear Cove Picnic Area is heavily used by private hikers, and lies along the heavily used north shore of Huntington Lake. The remaining three system trails in this AU are infrequently used by all user groups.

No use trails are located within this AU.

One system trail, the Kaiser Loop Trail, received a trail assessment. The trail assessment did not indicate any trail stability concerns. The remaining four system trails are either in a flat and stable alignment, or see such little use (the Coarsegrass Meadow Trail 25E08 and the Black Point National Recreation Trail 25E44) that they are currently in stable condition.

Environmental Consequences

Alternative 1

Direct Effects

The currently stable Kaiser Loop Trail and Huntington Lake Trail are the only trail in this AU used by commercial pack stations, and they would continue to be stable with the removal of commercial pack stock from the trail. These trails are also heavily used by hikers and moderately used by private equestrians, and this use would be expected to continue. All other system trails in the AU would be expected to have no change in use patterns since they are currently not used by commercial pack stations, and would continue to remain in their currently stable state.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 2

Direct Effects

The system trails in this AU are currently stable and would be expected to remain stable in this alternative. The addition of commercial pack stock (when compared to Alternative 1) to this AU would only affect the Kaiser Loop Trail and the Huntington Lake Trail. These trails are currently in stable condition, and would be expected to remain that way with the addition of commercial stock (when compared to Alternative 1). All other system trails in this AU would not be expected to see an increase in use over their current use.

There are no use trails in this AU.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 3

Direct Effects

The direct effects of this alternative on trail stability are identical to those described in Alternative 2, as use levels and patterns are not expected to change, and approval of use on system trails is identical in both alternatives.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

COYOTE (COO)

Affected Environment

The COO AU is the northern-most AU in the Dinkey Lakes Wilderness, and is accessed primarily by the California Riding and Hiking Trail from Badger Flat, or the Coyote Lake Trail from Coyote Lake. The entire AU is designated as a Recreation Category 2 area in the 2001 Wilderness Plan.

The COO AU contains many trails that are either currently system trails or were system trails at one point in the past. Many of these trails were created to access cattle allotments and/or Perkins Camp, a historic cabin and corral facility on the middle of this AU. Currently, 6 system trails covering 14.0 miles are within the COO AU. Many of the current and former system trails in this AU show little sign of recent use, and many are difficult to follow due to naturalization. In particular, two trails (both sides of the Ershim Lake Trail 26E54) between the California Riding and Hiking Trail (24E03) and the Dusy-Ershim OHV trail have naturalized to a substantial degree. Also, the Perkins Cutoff Trail (26E42) has naturalized over large stretches. The two trails in this AU that are still well used by recreationists are the California Riding and Hiking Trail and the Coyote Lake Trail (26E43). In addition, the proposed Black Peak Trail (27E08), which runs from Rock Meadow to First Dinkey Lake, receives a moderate level of use from recreationists. Generally, the system trails in this AU are stable with few risk factors. The most significant risk factor present on most system trails in this AU is meadow crossings. Most trails pass through a meadow at some point, and the potential for incision is moderate, though few trails are incised at the present.

Use trails in this AU are primarily created by cattle. Cattle in the Rock Meadow and along Coyote Creek areas have created a network of trails used primarily by cattle, but occasionally by a wandering hiker or equestrian. The only other use trail in this area (COO01 and COO02, which are segments of the same use trail) stretches for 1.0 miles between the Coyote Lake Trail/California Riding and Hiking Trail junction and Ershim Lake in the John Muir Wilderness. This trail gets more use than many of the current and former system trails that travel in parallel paths to the north and south of this use trail.

Four system trails received trail assessments in this AU (proposed Black Peak Trail 27E08, part of California Riding and Hiking Trail 24E03, part of Coyote Lake Trail 26E43 and Perkins Cutoff Trail 26E42). Only the proposed Black Peak Trail showed any signs of instability. This instability was isolated to approximately ½ mile of trail south of Rock Meadow, where the trail is incised and eroding. The terrain in the COO AU tends to be moderate, and the remainder of the system trails that did not receive trail assessments are generally stable due to few risk factors being present.

No use trails were assessed in this AU, but due to the moderate terrain and few risk factors present, the only use trail (COO01/COO02) is currently in stable condition.

D&F is the only pack station that operates within this AU. The California Riding and Hiking Trail sees the most amount of use from commercial stock, though the use trail leading to Ershim Lake also receives some commercial stock use.

Environmental Consequences

Alternative 1

Direct Effects

There would be no increase in trail stability expected on system trails in this AU, as the trails have few risk factors aside from meadow crossings, and are currently in stable condition. The California Riding and Hiking Trail, which sees more commercial stock use than any other system trail in this AU, would not be expected to increase in stability (it is currently stable) and would not be expected to naturalize or diminish in its size over time, as it is used by both hikers and private equestrians as well.

Use trails COO01 and COO02 are currently stable would see no increase in trail stability over either the short-term and long-term even without the presence of commercial stock. These trails could expect to see increased naturalization over the long term.

Indirect Effects

There would continue to be discrepancies between use patterns, recreation categories and designated trail classes of system trails. These discrepancies would continue to direct trail maintenance efforts potentially in the wrong places, and therefore potentially lead to trail instability because of lack of appropriate targeting of trail maintenance efforts. In particular, the proposed Black Peak Trail would not be able to be repaired or stabilized with trail maintenance funding because it would not be part of the official trails system.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, ongoing cattle grazing use has cumulative effects to trail stability in this AU. The Blasingame allotment overlaps with the western portion of this AU, and cattle use the Perkins Cutoff Trail, particularly near Coyote Creek and South Fork Big Creek. Cattle have an adverse effect on trail stability for similar reasons as stock, primarily the churning of top layers of soil and compaction of lower layers of soil, making the top soil more available for transport via wind or water erosion. Most of the instability from cattle occurs where the trails cross the streams, and this instability would persist under this alternative.

Alternative 2

Direct Effects

The addition of commercial stock (when compared to Alternative 1) would not be expected to cause any change in stability on system trails within this AU, as there are currently few risk factors (except for meadow crossings, which are currently stable). The primary trail used by commercial stock in this AU is the California Riding and Hiking

Trail, and there would be no change to the current stable state of this trail. The Black Peak Trail, which currently has active incision occurring, would not see an increase in stability unless actively repaired with trail stabilization structures. The removal of commercial pack stations from this trail would have no effect on its stability without this repair.

One segment of a use trail is approved in this alternative. COO02 is approved for use because it lies outside of the Dinkey Lakes Wilderness in the Dusy-Ershim OHV corridor. The effects of hiker and equestrian use on this 0.1 mile use trail crossing the Dusy-Ershim OHV corridor pale in comparison to the OHV use on this section of non-wilderness use trail. COO01 is prohibited from commercial stock use. While this trail would not show any increase in stability because they are currently stable, it would be expected to show some naturalization over time, though it is unlikely that it would disappear because of persistent use by hikers and private equestrians.

Indirect Effects

In this AU, the Dinkey Lakes Trail Plan would be more consistent with current use patterns and recreation categories, which would increase the stability of all system trails over the long-term by allowing for more consistent and appropriate management. The Black Peak Trail, which is currently not on the trail system, would be able to be maintained at a TC3 level, ensuring its stability by making it a high priority for maintenance and stabilization every year.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, ongoing cattle grazing use has cumulative effects to trail stability in this AU. The effects are described in the Alternative 1 Cumulative Effects section of this AU.

Alternative 3

Direct Effects

The addition of commercial stock (when compared to Alternative 1) would not be expected to cause any change in stability on system trails within this AU, as there are currently few risk factors (except for meadow crossings, which are currently stable). The primary trail used by commercial stock in this AU is the California Riding and Hiking Trail, which is used to access the only designation stock camps and destination zones in this AU, which are at Perkins Camp and Rock Meadow. There would be no change to the current stable state of this trail, as there are few risk factors and use levels of commercial stock on this trail are not expected to change from historic use patterns. The Black Peak Trail, which currently has active incision occurring, would not see an increase in stability unless actively repaired with trail stabilization structures. The removal of commercial stock from this trail would have no effect on its stability without this repair.

Two use trails (actually two segments of the same use trail) are approved in this alternative. COO01 and COO02 are approved for commercial stock use. These trails would not show any decrease in stability because they are currently stable. Because the two former system trail access route to Ershim Lake (both sides of 26E54) are no longer on the trail system in this alternative and are also not approved use trails, the COO01/COO02 use trail is the only access to Ershim Lake from this section of the Dinkey Lakes Wilderness. It is currently in stable condition, and so is approved for use.

Indirect Effects
In this AU, the Dinkey Lakes Trail Plan would be more consistent with current use patterns and recreation categories, which would increase the stability of all system trails over the long-term by allowing for more consistent and appropriate management.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, ongoing cattle grazing use has cumulative effects to trail stability in this AU. The effects are described in the Alternative 1 Cumulative Effects section of this AU.

DINKEY LAKES (DIL)

Affected Environment

The DIL AU is the eastern-most AU in the Dinkey Lakes Wilderness, and receives by far the most use of any AU in the Dinkey Lakes Wilderness. This AU is accessed primarily by the Dinkey Lakes Trail out of Willow Meadow (Dinkey Lakes) Trailhead. The Dinkey Lakes Basin is designated as a Recreation Category 3 area in the 2001 Wilderness Plan, while all other areas in this AU are designated as Recreation Category 2 areas.

Currently, seven trails totaling 8.25 miles are within the DIL AU. The system trails in this AU are heavily used by hikers, and lightly used by equestrians. Because the Dinkey Lakes Basin is within several miles of the trailhead, and the trail into the basin is moderate, use on the system trails in the basin tends to be heavy and regular. Backpackers and day hikers are the primary users of trails in this AU. The Dinkey Lakes Trail (27E07) and the Mystery Lake Trail (27E11) form a very popular loop that accesses the four main lakes in this area (First Dinkey Lake, Mystery Lake, South Lake and Swede Lake).

Use trails in this AU are mostly concentrated around the lakes in the Dinkey Lakes Basin. Most lakes have use trail loops around the entire lake, plus spur trails to popular campsites. Four use trails totaling 1.9 miles are used by D&F and CPO in this AU. One use trail (DIL01), used as a shortcut from the eastern Dinkey Lakes Trail/Mystery Lake

Trail junction to the meadow northeast of First Dinkey Lakes, cuts through a meadow and has high potential for incision.

Four system trails received trail assessments in this AU (Black Peak Trail 27E08, Dinkey Lakes Trail 27E07, Mystery Lake Trail 27E11 and Coyote Lake Trail 26E43). Only the Mystery Lake Trail showed any signs of instability. This instability is primarily located on the trail west of Swede Lake, where there is a steep section of trail with an insufficient amount of structures to protect trail tread and trail stability. Additionally, the trail cuts through a wet meadow with soft soils to the east of Mystery Lake, which is causing some incision and instability. The terrain in the DIL AU tends to be moderate with the exception of the Island Lake Trail and Rainbow Lake Trail. These two trails, which did not receive trail assessments, are steep, and while they are currently in stable condition they would likely deteriorate to an unstable condition over several years if not maintained properly. The remainder of the system trails that did not receive trail assessments are generally stable due to few risk factors being present.

One use trail (DIL01) received a trail assessment. This trail was determined to be unstable because a small section of the trail at the south edge of the meadow surrounding First Dinkey Lake captures a small stream, creating incision and instability. Additionally, the trail remains wet for much of the summer which leads to further instability of the trail. The remainder of the use trails that were not assessed in this AU show similar signs of instability as a result of cutting through meadows, with the exception of DIL02 (a spur on the west side of Swede Lake), which is currently in stable condition.

Environmental Consequences

Alternative 1

Direct Effects

There would be no change to trail stability of either system or use trails in this AU. The only system trail currently in an unstable condition is the Mystery Lake Trail, which sees little use from commercial stock, and this trail would remain unstable. The stability of portions of this trail would only be expected to improve if structures are installed to stabilize the trail tread. All use trails would persist in their current condition (many are currently unstable because they cross through wet meadows), as they are primarily used by hikers.

Indirect Effects

There would continue to be discrepancies between use patterns, recreation categories and designated trail classes of system trails. These discrepancies would continue to direct trail maintenance efforts potentially in the wrong places, and therefore potentially lead to trail instability because of lack of appropriate targeting of trail maintenance efforts. In particular, the Mystery Lake Trail would remain designated a TC2 and would therefore receive only moderate priority for trail maintenance, even though it is one of the most popular trails in the AU and currently shows signs of instability. This alternative would likely have the effect of perpetuating the instability of this trail.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 2

Direct Effects
The addition of commercial stock (when compared to Alternative 1) at the expected low levels would not be expected to have an impact on the stability of system trails in the AU. Most of the trails that would be used by commercial stock would be maintained at a TC3 level. The Rainbow Lake Trail, which is steep and has risk factors present related to grade, would be unlikely to see use from commercial stock based upon historical patterns, and therefore would not show any change in stability. If not maintained to standard, there could be a minor decrease in the stability of the Island Lake Trail, as commercial stock have historically used Island Lake as a spot and dunnage site for clients. The commercial stock almost certainly would use the Island Lake Trail to access the lake, as opposed to cross-country routes. While this use is expected to be infrequent, there would still be a minor decrease in trail stability if the trail is not maintained.

The use trails in this AU are primarily used by hikers and infrequently used by commercial pack stations, and so there would be no expected change to the trail stability of these trails due to the addition of commercial stock (when compared to Alternative 1) to the approved use trails (DIL02 and DIL03) or due to the removal of commercial pack stock from prohibited use trails (DIL01 and DIL04). DIL03 passes through a meadow at the southwest corner of South Lake, which is currently unstable and would remain unstable in this alternative. Use trails DIL01 and DIL04, which are also currently unstable, would not improve in stability, as these trails are primarily used by hikers, like all trails in this AU. DIL02 is currently stable and would remain in stable condition.

Indirect Effects
In this AU, the Dinkey Lakes Trail Plan would be more consistent with current use patterns and recreation categories, which would increase the stability of all system trails over the long-term by allowing for more consistent and appropriate management. Most significantly, the Mystery Lake Trail would be upgraded to a TC3, allowing for an appropriate level of maintenance considering the heavy use that this trail receives and its current unstable condition.

Cumulative Effects
All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 3

Direct Effects
The addition of commercial stock (when compared to Alternative 1) at the expected low levels would not be expected to have an impact on the stability of system trails in the AU. Use would continue at approximately the same level as historic levels. The restriction of commercial stock to dropping clients at only designated destination zones would not

change from historic use patterns, as the destination zones are the same places (South Lake, Island Lake, Second Dinkey Lake) that the pack stations have dropped their clients in the past. Because of the similarity in use patterns between this alternative and historic use patterns, there would be no expected change to trail stability due to the addition of commercial stock to system trails in this AU. The Rainbow Lake Trail, which is steep and has risk factors present related to grade, would be unlikely to see use from commercial stock based upon historical patterns and the fact that there is no destination zone at Rainbow Lake, and therefore this trail would not show any change in stability. If not maintained to standard, there could be a minor decrease in the stability of the Island Lake Trail, as commercial stock have historically used Island Lake as a spot and dunnage site for clients, and is it a designated destination zone. Commercial stock almost certainly would use the Island Lake Trail to access the lake, as opposed to cross-country routes. While this use is expected to be infrequent, there would still be a minor decrease in trail stability if the trail is not maintained.

No use trails are approved for commercial stock use in this alternative. Use trails that have historically been used by commercial stock would not be expected to naturalize, as they are primarily around lakes and stream corridors, and are much more heavily used by hikers than stock users. DIL01, DIL03 and DIL04 would remain unstable due to the trails crossing through meadows; DIL02 would remain in its current stable condition.

Indirect Effects

In this AU, the Dinkey Lakes Trail Plan would be the most consistent with current use patterns and recreation categories, which would increase the stability of all system trails over the long-term by allowing for more consistent and appropriate management without overly developing the trails system. Most significantly, the Mystery Lake Trail would be upgraded to a TC3, allowing for an appropriate level of maintenance considering the heavy use that this trail receives and its current unstable condition. All trails would be given the appropriate trail class designation so that their stability can be maintained while not overly developing these wilderness trails.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

HELMS (HEL)

Affected Environment

The HEL AU is the eastern-most AU in the Dinkey Lakes Wilderness, and is accessed primarily by the Helms Meadow Trail from the Courtright Reservoir area and the Black Peak area. Approximately 52% of this AU is designated as a Recreation Category 1 area in the 2001 Wilderness Plan. This Recreation Category 1 zone encompasses most of the area to the northeast of Helms Meadow in this AU. The remainder of the AU (48%) is designated as a Recreation Category 2 area, including Helms Meadow.

The HEL AU contains 6 system trails that cover 12.3 miles. These trails receive low use from all user groups. The two trails that receive the most use are the Helms Meadow Trail (27E56), which traverses the AU from northwest to southeast, and the Frazier Trail (28E33), which weaves in and out of wilderness near Courtright Reservoir. The other system trails include the East Lake Trail (27E31), the Hot Springs Pass Trail (27E30), the Bullfrog Lake Trail (27E32) and the Nelson Lake Trail (27E09). These trails in this AU receive little use, and are naturalizing to some degree.

Use trails in this AU were primarily created by cattle in the Helms allotment, similar to the Blasingame allotment in the COO AU. Although the Helms allotment is currently closed, some of these use trails still persist and are occasionally by a wandering hiker or equestrian.

No system trails received a trail assessment in this AU. Because of the low use in this AU, the trails are stable and to some degree are naturalizing, particularly the trails that climb out of the Helms Valley to lakes (East Lake Trail, Nelson Lake Trail, Bullfrog Lake Trail).

There are no use trails that are used by commercial pack stations in this AU.

CPO is the only pack station that operates within this AU, though CPO uses it very infrequently.

Environmental Consequences

Alternative 1

Direct Effects

The system trails in the HEL AU are generally stable and see low use. Historically commercial stock rarely used trails in this AU, and the removal of commercial stock would have no effect on the trail stability of any system trails within this AU.

Indirect Effects

There would continue to be discrepancies between use patterns, recreation categories and designated trail classes of system trails. These discrepancies would continue to direct trail maintenance efforts potentially in the wrong places, and therefore potentially lead to trail instability because of lack of appropriate targeting of trail maintenance efforts. It is possible that the Helms Meadow Trail would see, over the long-term, a slow degradation of trail stability due to lack of maintenance that is likely with a TC1 designation. The Frazier Trail is not included in the system in this alternative, though it is a well-used system trail outside of wilderness that weaves in and out of the Dinkey Lakes Wilderness. This trail would likely see a decrease in stability over the long-term if not maintained along the wilderness portions of the trail. All other trails in the AU would likely retain their stability due to low use, in spite of some risk factors (grade).

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, historic cattle grazing use has cumulative effects to trail stability of use trails in this AU. There are some remaining use trails from cattle that used to graze in the Helms allotment, which is now closed. Cattle have an adverse effect on trail stability for similar reasons as stock, primarily the churning of top layers of soil and compaction of lower layers of soil, making the top soil more available for transport via wind or water erosion. Most of the instability from cattle occurs where the trails cross the streams, and this instability would persist under this alternative. Since this allotment is closed, it is likely that most of the trails created by cattle have already naturalized or will naturalize in the near future, but there may be some cattle use trails, particularly near creeks, that will continue to show instability until repaired.

Alternative 2

Direct Effects

Trails in this AU would remain stable with the addition of commercial pack stock because of low use on the trails that commercial pack stock use (Helms Meadow Trail, Hot Springs Pass Trail) and because of few risk factors on those trails.

No use trails were requested for commercial stock use in this AU.

Indirect Effects

In this AU, the Dinkey Lakes Trail Plan would be more consistent with current use patterns and recreation categories, which would increase the stability of all system trails over the long-term by allowing for more consistent and appropriate management. Most significantly, the Helms Meadow Trail would be upgraded to a TC2, allowing for an appropriate level of maintenance considering on this trail, which received more use than any other trail in this AU, though that use is still low.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, historic cattle grazing use has cumulative effects to trail stability of use trails in this AU. There are some remaining use trails from cattle that used to graze in the Helms allotment, which is now closed. Cattle have an adverse effect on trail stability for similar reasons as stock, primarily the churning of top layers of soil and compaction of lower layers of soil, making the top soil more available for transport via wind or water erosion. Most of the instability from cattle occurs where the trails cross the streams, and this instability would persist under this alternative. Since this allotment is closed, it is likely that most of the trails created by cattle have already naturalized or will naturalize in the near future, but there may be some cattle use trails, particularly near creeks, that will continue to show instability until repaired.

Alternative 3

Direct Effects

The trails in this AU have historically seen little use from commercial stock, and so there would be no change in trail stability with the addition of commercial stock (when compared to Alternative 1) to these trails. In addition, there are no designated stock camps or destinations zones within this AU, and so these trails would only be used for day rides out of overnight stock camps (there are no day rides allowed in the Dinkey Lakes Wilderness that are not part of an overnight trip), making it unlikely that commercial stock would visit trails in this AU.

No use trails were requested for commercial stock use in this AU.

Indirect Effects

In this AU, the Dinkey Lakes Trail Plan would be more consistent with current use patterns and recreation categories, which would increase the stability of all system trails over the long-term by allowing for more consistent and appropriate management. Most significantly, the Helms Meadow Trail would be upgraded to a TC2, allowing for an appropriate level of maintenance considering on this trail, which received more use than any other trail in this AU, though that use is still low.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

In addition to the cumulative effects listed in the Overview of Environmental Consequences section, historic cattle grazing use has cumulative effects to trail stability of use trails in this AU. There are some remaining use trails from cattle that used to graze in the Helms allotment, which is now closed. Cattle have an adverse effect on trail stability for similar reasons as stock, primarily the churning of top layers of soil and compaction of lower layers of soil, making the top soil more available for transport via wind or water erosion. Most of the instability from cattle occurs where the trails cross the streams, and this instability would persist under this alternative. Since this allotment is closed, it is likely that most of the trails created by cattle have already naturalized or will naturalize in the near future, but there may be some cattle use trails, particularly near creeks, that will continue to show instability until repaired.

NELSON (NEL)

Affected Environment

The NEL AU is the southern-most AU in the Dinkey Lakes Wilderness, and is accessed primarily by the Dinkey Lakes Trail from the Courtright Reservoir area and the Dinkey Lakes Basin area. The area surrounding Rock Lake and Cliff Lake is designated as a Recreation Category 3 area in the 2001 Wilderness Plan, while the remainder of the AU is designated as a Recreation Category 2 area.

Six system trails covering 9.9 miles in this AU are moderately used by hikers and equestrians. Because the Dinkey Lakes Basin is nearby to the west, much of the hiker

traffic enters the AU from the west on the Dinkey Lakes Trail and proceeds to use trails in the Rock Lake, Cliff Lake and Dogtooth Peak areas. Stock users tend to enter the AU from the East at the Cliff Lake Trailhead and use the Nelson Lake and Cliff Lake areas. System trails spur off of the Dinkey Lakes Trail to each of the destinations listed above. These spur trails are moderately used, though stock traffic does not use the Dogtooth Peak Trail due to the rugged nature if the trail.

Use trails in this area are mostly concentrated around lakes in the area. Most lakes have a use trail loop encircling the lake. These loop trails are primarily used by hikers and equestrians on their way to campsites or fishing holes. Few other use trails exist within this AU, and none are prominent aside from the lake-associated trails. Three use trails covering 1.0 miles were requested for use by commercial pack stations. One is a loop around Nelson Lake (NEL01), and the others are spur trails off of system trails at Cliff Lake and Little Lake that are used for grazing access (NEL02 and NEL03, respectively).

Two system trails received trail assessments in this AU; the Nelson Lake Trail (27E09) and part of the Dinkey Lakes Trail (27E07). Neither trail showed instability. The remainder of the trails in this AU are currently in stable condition.

No use trails received trail assessments, but the three use trails requested for use by commercial pack stations in this AU are stable and in terrain that contains few risk factors.
CPO is the sole commercial pack station that uses this AU. CPO accesses the AU from Cliff Lake Trailhead, and uses the AU for day rides, spot and dunnage trips and cull service trips at Nelson Lake and Cliff Lake.

Environmental Consequences

Alternative 1

Direct Effects

There would be no change to trail stability of either system or use trails in this AU. All use trails in this AU are currently stable, and would remain stable without the presence of commercial pack stock.

Indirect Effects

There would continue to be discrepancies between use patterns, recreation categories and designated trail classes of system trails. These discrepancies would continue to direct trail maintenance efforts potentially in the wrong places, and therefore potentially lead to trail instability because of lack of appropriate targeting of trail maintenance efforts. The Frazier Trail is not included in the system in this alternative, though it is a well-used system trail outside of wilderness that weaves in and out of the Dinkey Lakes Wilderness. This trail would likely see a decrease in stability over the long-term if not maintained along the wilderness portions of the trail. All other trails in the AU would likely retain their stability due to low use, in spite of some risk factors (grade).

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 2

Direct Effects

The addition of commercial stock (when compared to Alternative 1) to both the system and use trails in this AU would not be expected to have an impact on the stability of system trails in the AU. The primary trail used by commercial stock in this AU is the Dinkey Lakes Trail, which is CPO's main artery to access all destinations within the Dinkey Lakes Wilderness. There would be no change to the current stability of this trail, as there are few risk factors and use levels of commercial stock on this trail are not expected to change from historic use patterns. The other trails that would be used by commercial stock have few risk factors, with the exception of the Dogtooth Trail, which is designated as NSCS.

Three use trails are approved for commercial stock use in this alternative. NEL01 is a stable loop around Nelson Lake, and would remain stable with the addition of commercial stock. NEL02 and NEL03 are approved 0.1 mile use trails to access grazing areas near Cliff Lake and Little Lake, respectively. These trails are currently in stable condition and would remain in stable condition with the addition of commercial stock (when compared to Alternative 1).

In this alternative, the Dogtooth Trail is designated as "Not Recommended For Stock (NRFS)" and "Not Suitable For Commercial Stock (NSCS)". This trail currently receives little or no use from either private or commercial stock, and this designation is not expected to have an impact on the stability of the trail.

Indirect Effects

In the NEL AU, the trail system would be more consistent with use patterns and recreation categories. A RC3 area surrounds Rock and Cliff Lakes, and within this area (and extending out to the surrounding TC2 areas) the Dinkey Lakes Trail currently passes through as a TC3, and the Little Lake and Bullfrog Lake Trails would be upgraded to TC2, which would ensure their stability at use levels above the maximum amount of use anticipated on these trails. The Nelson Lake Trail would be upgraded to TC2, which would allow for greater protection of the trail stability on this trail which is used by CPO to access Nelson Lake. The Frazier Trail is the only system trail added in this AU, and is added as a TC1, which would allow for maintenance on a less than annual basis, but nevertheless an increase in trail stability over the long-term.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 3

Direct Effects

The addition of commercial stock (when compared to Alternative 1) would not be expected to cause any change in stability on system trails within this AU, as there are currently few risk factors and all trails in the AU are stable. The primary trail used by commercial stock in this AU is the Dinkey Lakes Trail, which is CPO's main artery to access all destinations within the Dinkey Lakes Wilderness. There would be no change to the current stable state of this trail, as there are few risk factors and use levels of commercial stock on this trail are not expected to change from historic use patterns. The Nelson Lake Trail and the Little Lake Trail would be use levels similar to historic use levels, and these stable trails would not see any change in trail stability as a result of destination zones at these lakes.

Three use trails are approved for commercial stock use in this alternative. NEL01 is a stable loop around Nelson Lake, and would remain stable with the addition of commercial stock. NEL02 and NEL03 are approved 0.1 mile use trails to access grazing areas near Cliff Lake and Little Lake, respectively. These trails are currently in stable condition and would remain in stable condition with the addition of commercial stock (when compared to Alternative 1).

In this alternative, the Dogtooth Trail is designated as "Not Recommended For Stock (NRFS)" and "Not Suitable For Commercial Stock (NSCS)". This trail currently receives little or no use from either private or commercial stock, and this designation is not expected to have an impact on the stability of the trail.

Three use trails totaling 1.0 mile are approved for commercial stock use in this alternative. These use trails have historically been used by commercial stock, and show few risk factors. The addition of commercial stock (when compared to Alternative 1) to these use trails would be unlikely to decrease the stability of these trails. The trails are used for grazing access and campsite access.

Indirect Effects

In the NEL AU, the trail system would be more consistent with use patterns and recreation categories. Aside from the Dinkey Lakes Trail, which would remain a TC3, all other trails in this AU would be designated as TC1, which would allow for their continued stability while also not overly developing these wilderness trails.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

DINKEY FRONT COUNTRY (DFC)

Affected Environment

CPO is the only commercial pack station to operate within this AU. The sole system trail within this AU, the Dinkey Creek Trail (26E13), runs through this AU for 2.8 miles and

is regularly used by hikers and fishermen recreating in the Dinkey Creek area, and also used regularly by CPO for day rides.

Six use trails cover 2.9 miles in the AU. These use trails are used by CPO for day rides. The use trails form a network of loops with existing roads and the Dinkey Creek Trail to provide CPO with a variety of trail lengths for day rides. These use trails receive little use from private users, and regular use by CPO.

Several roads in the area are also used by CPO as part of their network of day ride trails. The impact of pack station use on these roads is negligible compared to private vehicle traffic.

No system trails received trail assessments in this AU. The Dinkey Creek Trail is currently in stable condition within this AU due to low risk factors.

All six use trails received trail assessments. These six use trails for two loops in the DFC AU. Five of the six segments were assessed to be in stable condition. DFC01 is in an unstable condition at stream crossings, where steep grades on the trail leading into two different creeks are causing erosion into the water channel.

Environmental Consequences

Alternative 1

Direct Effects

The Dinkey Creek Trail, which is currently in a stable condition, would expect to see less overall stock use, but trail stability would not be expected to increase with the removal of commercial pack stock. Hiker, fisherman and private equestrian use would be expected to continue at the same levels.

Use trails in the area would be expected to persist due to use by hikers and other recreationists. No increase in stability would be expected since the trails are currently not in an unstable condition, with the exception of DFC01. The unstable stream crossings along DFC01 would not increase in stability until structures are installed to stabilize these segments of the trail. The unstable section would not stabilize simply because of the removal of commercial pack stock from the trail.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 2

Direct Effects

The only system trail in this AU, the Dinkey Creek Trail, is currently in stable condition and would be expected to remain in stable with the addition of commercial stock (when

compared to Alternative 1). The trail has few risk factors, and is currently well-used by hikers, fishermen and private equestrians.

Four of the five approved use trails in this AU are currently in stable condition, and would be expected to remain in stable condition in these alternatives. The fifth approved use trail, DFC01, could see a decrease in stability due to the addition of commercial stock (when compared to Alternative 1) on this trail. The addition of commercial stock (when compared to Alternative 1) to these unstable section of the trail could increase the amount of soil available for erosion. The stability of these sections would not increase until structures are installed to increase trail stability. One prohibited use trail (DFC05, 0.3 miles) would be expected to persist over time due to continued hiker use, but would not see an increase or decrease in stability.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 3

Direct Effects

The direct effects of this alternative would be identical to those described in Alternative 2.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

TULE MEADOW (TUL)

Affected Environment

CPO is the only commercial pack station to operate within this AU, which contains the pack station's headquarters. There are no trails or roads within this AU, with the exception of one use trail, which extends from the pack station headquarters to Trail 28E07, and then on to a CPO spike station south of Wishon Reservoir. This use trail is described and analyzed within the WIS AU.

Environmental Consequences

Alternative 1

Direct, Indirect, and Cumulative Effects

Since there are no trails analyzed within this AU, there are no direct or indirect effects in this AU.

Alternative 2

Direct, Indirect, and Cumulative Effects

Since there are no trails analyzed within this AU, there are no direct or indirect effects in this AU.

Alternative 3

Direct, Indirect, and Cumulative Effects

Since there are no trails analyzed within this AU, there are no direct or indirect effects in this AU.

WISHON (WIS)

Affected Environment

CPO is the only commercial pack station to operate within this AU. Two use trails lay outside of the boundaries of this AU, but are considered to be within this AU for the purposes of analysis. These use trails run for 5.7 miles in the vicinity of this AU. One use trail (WIS02), extending from CPO headquarters in the TUL AU to Trail 28E07 near the Cliff Bridge is used regularly and exclusively by CPO. A second use trail (WIS01), extending from the CPO spike station in this AU to the Rancheria Trailhead, is used primarily by CPO to access the trailhead, but also by Forest Service staff for access to the trailhead from the Wishon Work Center.

There are no system trails within this AU.

One use trail (WIS01) received a trail assessment and assessed to be unstable at one stream crossing, but otherwise stable. Use trail WIS02 follows relatively flat terrain with few risk factors until it joins a 4WD road 29E06A, which it then follows down steeper terrain to join 29E06, and then 29E07. This use trail is stable due to few risk factors and hardened tread where is is aligned with the 4WD and dirt roads.

Environmental Consequences

Alternative 1

Direct Effects

WIS02 between CPO headquarters and Trail 28E07 would be expected to stabilize and naturalize over time, as CPO is the exclusive user of this trail. WIS01, between CPO headquarters and the Rancheria Trailhead, would still see small levels of administrative stock use, and so some increase in trail stability would be expected due to an overall decrease in the number of stock on the trail. Naturalization would not be expected on this trail, however, since it would still receive some use from stock. Instability at the stream crossing on WIS01 would not be expected to stabilize until structures are put in place to stabilize the tread.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 2

Direct Effects

No use trails are approved for use in this AU, as WIS01 and WIS02 were overlooked in the development of this alternative. Therefore, the direct effects would be identical to Alterntaive 1, since no commercial stock would be present on these two use trails.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 3

Direct Effects

The approved use trails in this AU are currently in stable condition with the exception of a stream crossing on WIS01, and would be expected to remain in stable condition in these alternatives. The addition of commercial stock (when compared to Alternative 1) to these use trails would allow them to persist in their current condition. Instability at the stream crossing on WIS01 would not be expected to stabilize until structures are put in place to stabilize the tread.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

ANSEL ADAMS/JOHN MUIR (AA/JM)

Affected Environment

A comprehensive discussion of the wilderness resource for the Ansel Adam/John Muir AU can be found in the 2005 Pack Stock Management EIS on page III-49. This EIS incorporates that information by reference.

In addition, one use trail (POC03) that is adjacent to the AA/JM AU (identified in the 2005 Pack Stock Management EIS) is analyzed in these alternatives. This trail leads from the Maxson Trailhead to an approved use trail within the John Muir Wilderness. Because this trail is outside of any AU, it is being considered as a stand-alone trail.

Environmental Consequences

Common to All Alternatives

In general, the primary consequences from trail related actions in the 2005 Pack Stock Management EIS would be a net improvement in the trail system and on associated resources in the trail corridor and improved consistency between trail and area management. These benefits will be primarily evident in the following ways:

Trail management and desired area management are closely aligned, with few anomalies between trail classes and desired conditions. For example, less than 1% of the total trail system is designated TC4 and only 4 miles of TC3 trail is accessing the most primitive areas (Recreation Category 1 areas). This will result in greatly reduced potential trail conflicts with wilderness character.

Trail classes are most closely aligned with current observed trail development levels. This will have beneficial effects by avoiding the need to upgrade many trails, unless there is an overarching benefit to do so. Very few trails are designated at levels below what currently exists, so there will be minimal changes in management that could allow a gradual loss of infrastructure, which in turn would cause resource impacts if use continues at current levels or that would affect the existing users of these trails.

There is a very high level of consistency of trail management between the Sierra and Inyo National Forests.

Internal controls using the "destination management" concept ensures a high level of predictability of use types and numbers. Trail development is very consistent with anticipated use and on-the-ground conditions, resulting in greater trail stability and reduced physical resource impacts.

Commercial stock is prohibited from approximately 10% of system trails, which were determined unstable with even low levels of recurring stock use, ensuring that the majority of stock use is limited to trails most capable of remaining stable under anticipated use. Reduced maintenance costs on these trails allows for more efficient distribution of trail maintenance and reconstruction funds and more stable conditions on other system trails.

Nine miles of NSCS trails will be re-opened for commercial stock use after they are stabilized. This provides added flexibility for commercial operators to access areas, once resource and trail stability issues are corrected.

Commercial stock is limited to use trails which have relatively few risk factors and a high likelihood of continued stability. Highly dispersed undefined routes are approved for very limited use with temporal controls. Anticipated use is highly predictable, and these use trails should remain stable or even improve slightly under the prescribed use levels.

Limiting commercial stock access over snow-drifted passes until the destination system and use trails are ready for use will have moderate beneficial effects to these destination trails and resources.

Over the short term there will be negligible to minor localized and regional beneficial impacts, by reducing one of the contributing sources of adverse effects on the most susceptible trails. Physical trail and resource stability will not likely improve substantially during the short term, but will improve over the long term as physical treatments and/or natural recovery occurs. Over the long term, it is expected that there will be minor beneficial effects at the wilderness scale, with moderate beneficial effects to resources and trails at the local level. There will likely be some minor reduction in user conflicts at remote destinations.

A comprehensive discussion of the environmental consequences to the wilderness resource for the AA/JM AU can be found in the 2005 Pack Stock Management EIS on page IV-178. This EIS incorporates that information by reference.

Alternative 1

Direct Effects

Use trail POC03 is currently in stable condition, and would remain in stable condition without the presence of commercial pack stock. Without the addition of commercial stock, this use trail would be expected to naturalize over time, as it receives very low use by other user groups.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 2

Direct Effects

Use trail POC03 is currently in stable condition, and the addition of commercial stock to this trail would not be expected to change that condition.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

Alternative 3

Direct Effects

Use trail POC03 is currently in stable condition, and the addition of commercial stock to this trail would not be expected to change that condition.

Indirect Effects

There are no indirect effects in this alternative.

Cumulative Effects

All cumulative effects outlined in the Overview of Environmental Consequences (section 3.1.3.3) apply to this alternative.

3.1.4 Heritage Resources and American Indian Concerns

3.1.4.1 Background

During the past five years, the SNF has intensively surveyed more than 300 miles of trails in the project area, and monitored approximately 200 heritage sites within wilderness and non-wilderness areas in order to document pack stock impacts to heritage resources. This research plus information gathered before 2000 clearly indicate an abundance of evidence that the entire planning area was a favored place of American Indian use for at least the past 7000 years. Historic uses are also abundant in the catalog of sites documented, representing a variety of activities including logging, mining, and hydroelectric power development, among others.

For this project, 79 miles of system trails and 34 miles of use trails have been inventoried for heritage resources. Portions of both system and use trails remain unsurveyed.

Each of the seven pack stations operating on SNF land has a history that extends back at least fifty years, although not under the same owner/operator. Historical assessments of each pack station will be done that tier to the thematic history of pack station operations that will be completed by the Inyo National Forest.

American Indian Concerns: Access and preservation of cultural values
The project area is part of the traditional territory of indigenous people, who today belong to the following tribes, communities, and organizations on the west side of the Sierra:

- Federally Recognized Tribes: Big Sandy Rancheria, North Fork Rancheria, Cold Springs Rancheria, Picayune Rancheria, and Table Mountain Rancheria.

- Tribes in process of seeking federal recognition: North Fork Mono Tribe, Dunlap Band of Mono Indians, and American Indian Council of Mariposa County, Dumna Tribe.

- Organizations include American Indian Center of Central California, Haslett Basin Traditional Committee, Mono Nation, Sierra Mono Museum, Central Valley Indian Health, Native Earth Foundation, and Sierra Nevada Native American Coalition.

There is a deep and abiding concern with many Indian people about what occurs within their aboriginal territory. Tribal members often express through story, song, poem, and art a strong and emotional reverence to the lands that form the place of their tribal birth. The lands encompassing this analysis embody a spiritual as well as cultural reverence that is important to individual as well as tribal well being. The feelings are interconnected yet inseparable. Ongoing "traditional walks" by local American Indians exemplify traditional values while reinforcing cultural traditions.

American Indian concerns are described, in part, in the Heritage Resources section of this chapter. Preservation of archaeological sites is important, however, archaeological sites and landscapes have a value to Indian people beyond the scientific information they contain. Although the surface material has in some cases disappeared or been greatly diminished, the cultural value of the trail, a prehistoric site, the gathering site, the sacred place, the history of travel and trade, the need to conduct ceremonies, etc. remains. One kind of significance assigned to a site or place is called a Traditional Cultural Property. Thus, access to sites and the protection of places of tribal value are important.

Tribes, organizations and individuals have expressed their needs and concerns specific to this project at various meetings with the Forest Service. Many of their comments have been addressed and will be further addressed in the development of Historic Properties Management Plans (HPMPs) for each proposed pack station permit. Presently, there do not appear to be significant concerns with respect to access to traditional locations or the protection of places of tribal value to the local American Indian community.

One of the comments that came out of a field trip to Sheep Crossing (located within the AA Wilderness) with a group of American Indians was that the MPS had a great opportunity for public interpretation of American Indian heritage, values, and culture. The North Fork Rancheria recommended that the content and design of the information be created by local Mono people and that a local Mono person be hired (by the MPS) to deliver that interpretation to the public. They also recommended that the MPS hire a Mono person to accompany some of the wilderness pack trips to do public interpretation of American Indian wilderness values for the pack station clients.

Desired Conditions

As a result of inventory, site identification, proposed and completed National Register of Historic Places evaluations for this project, and the implementation of management protection measures, heritage resources is progressing towards the desired future condition for this resource as defined in the 1991 Sierra National Forest LRMP, as amended.

3.1.4.2 Methodology

Field studies were conducted to collect data on the location and condition of heritage sites during the 2004/2005 field seasons. Data gathering in the field focused on locating, monitoring and assessing potential impacts to heritage resources from issuance of SUPs for commercial pack stations. As a result, most of the Area of Potential Effect (APE) has been intensively surveyed. Findings were incorporated into Archaeological Reconnaissance Reports (ARR) for each of the seven pack stations:

ARR# R2005051551001 (Yosemite Trails Pack Station)
ARR# R2005051551002 (Minarets Pack Station)
ARR# R200605153004 (High Sierra Pack Station)
ARR# R2006051553005 (D&F Pack Station)
ARR# R2006051553006 (Clyde's Pack Outfitters)
ARR# R2006051553011 (Lost Valley and Muir Trail Pack Stations)

The specific methodology guiding the collection of field data for heritage is provided in the *Strategy for Compliance with Section 106 of the National Historic Preservation Act for Issuance of Special Use Permits for Pack Station Operations on the Inyo and Sierra National Forests* (Strategy). The Strategy defines the APE, inventory methods, and determination of which resources are being impacted by the undertaking. This strategy was developed in consultation with the California State Historic Preservation Officer and the Advisory Council on Historic Preservation. A summary of each pack station ARR Reports and the Strategy are incorporated by reference in the environmental consequences, as required by 40 CFR 1502.21 and are in the project record on the High Sierra Ranger District.

Methodology and survey results pertaining to the AA/JM AU were addressed in the 2005 Pack Stock Management EIS, and are not included here.

An APE was identified for each of the remaining fifteen AUs. The APE included all permitted headquarter facilities, permitted spike station facilities, designated campsites, grazing areas as well as stock holding and water areas, system roads, system trails, and use trails. The APE was then targeted for intensive heritage inventory. Previous inventory was used to the extent possible and augmented by updated information gathered for this project.

Many system roads are used as trails by the various pack stations. Although these roads may bisect heritage resource sites, continued use of these roads by the pack stations would be allowed under Alternatives 2 and 3. Since impacts on heritage resources from the use of roads by commercial pack stock will not be greater than the impacts from vehicle use and continued maintenance of the road, periodic monitoring of commercial pack stock use on road through sites will not be required. It is expected that use of these roads as trails will be exclusively within the road prism.

Sections of stock driveways within AUs were inventoried if they were used as a trail by a pack station. However, the impacts of allowing paying clients to accompany or participate in a cattle drive were considered impossible to differentiate from use by permitted cattle, and were not analyzed for this environmental assessment. All stock driveways and any effects of cattle grazing on heritage resources will be analyzed in future NEPA analysis on range allotments.

Analysis Elements

Two elements were selected to measure the impacts from pack station operations on heritage resources:

- The physical remains of a heritage resource
- National Register of Historic Places (NRHP) Integrity

For a heritage resource site to be determined eligible to the NRHP, the site must be found significant under one or more of four NRHP criteria. The four criteria are: Criterion A, Event, an association with events that have made a significant contribution to the broad patterns of our history; Criterion B, Person, association with the lives of persons significant in our past; Criterion C, Design/Construction, sites that embody the distinctive

characteristics of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant entity; and Criterion D, Information Potential, properties that have yielded or may be likely to yield information important in prehistory or history. In order to apply these criteria for an eligibility determination, the physical remains of a site must be retained. If a portion of a site is disturbed, then there must be an adequate undisturbed portion of the site remaining. Effects from pack station operations on heritage resource sites have the potential to disturb the physical remains of a site beyond the point where the NRHP criteria can be applied, and a site can not be found eligible for inclusion in the NRHP.

In addition to significance, a heritage resource site must have integrity to be eligible to the NRHP. The NRHP recognizes seven qualities that define integrity: location, design, setting, materials, workmanship, feeling, and association. To retain integrity, a heritage resource site must possess several, and usually most, of these qualities. Without integrity, a heritage resource site can not convey significance, and can not be found eligible to the NRHP. Effects from pack station operations on heritage resource sites have the potential to affect the qualities of integrity that are necessary for the site to be found eligible for inclusion in the NRHP.

An effect to heritage resources that disturbs the physical remains or integrity of a site is classified as "potentially adverse" or "adverse". These are effects that diminish the characteristics of a historic property that qualify it for inclusion in the NRHP.

Sites specifically targeted for NRHP evaluations are identified in the Strategy and they include all sites, historic and prehistoric, within or immediately adjacent to the permitted boundaries of a pack station headquarter or spike station facility. Sparse lithic scatters, which tend to be a minor heritage resource of interest (NRHP eligible, listed, and unevaluated historic properties that may be adversely affected by pack station operations) have also been identified for evaluation if they are being potentially adversely/adversely affected by pack station operations or use. All heritage resources of interest that may be potentially or adversely affected by pack station operations or use will be avoided where possible. If avoidance management measures are not effective or feasible, other management measures or mitigation will be used depending on the type of site.

Heritage resource sites that are determined to be ineligible to the NRHP require no further management, mitigations or protections.

Certain activities associated with the operation of a pack station have been found to be strong indicators of effects to heritage resources. Not all types of heritage resources are impacted equally, or may be impacted at all. Effects may range from potentially adverse/adverse, to ambiguous effects or no effect. "Ambiguous effects" are ones where the presence of potentially adverse/adverse effects to a heritage resource site is uncertain.

The major types of services and uses associated with pack station operations that have the potential to affect heritage resources are the operations of facilities such as headquarter locations and spike station locations; trails, which can be a mix of use trails and system

trails; grazing; and designated stock camps, which generally include stock holding and watering areas. Following is a detailed list of indicators of potential effects from services and uses associated with pack station operations:

Facilities: Pack station facilities operating on heritage resource sites have the potential to affect sites through the disturbance of subsurface deposits from facility construction and maintenance, displacement of artifacts from stock movement, foot traffic, and vehicle traffic, erosion resulting from lack of vegetation and duff cover, artifact collection, and alteration or damage to historic features or buildings.

Trails (including stock driveways used as trails): Trails crossing or bisecting heritage resource sites have the potential to affect the resource by damaging, destroying, or displacing features and artifacts through trampling. Subsurface deposits may be damaged by trails that become incised, and are then subject to erosional processes, resulting in the removal or displacement of artifacts from the site. Another impact from trail use is incidental realignment of trails, which is the recurring minor shifting by stock out of incised tracks onto non-incised ground, where the result over time is an incremental movement, or realignment, of the trail prism. This type of realignment, sometimes referred to as multi-trailing, has the potential to shift a trail inside the boundary of a heritage resource site where it may disturb surface or subsurface deposits, and promote additional erosion. The presence of a trail within a heritage resource site is a direct effect to the site, however, it may be determined through monitoring that this effect has stabilized and is not having ongoing impacts, and the continued use of the trail will not further affect the physical remains or integrity of the site.

Grazing: Grazing tends to have ambiguous effects to heritage resources. Effects may include the damage, displacement, or destruction of features and artifacts through trampling. This activity has a greater potential to affect historic sites, since prehistoric sites tend not to be located directly in meadows. It may also be found through monitoring that the level of commercial pack stock grazing is not sufficient to affect the physical remains or integrity of a heritage resource site.

Designated Stock Camps (including assigned sites): Routine use of a designated stock camp on a heritage resource site can cause the displacement and destruction of artifacts and features resulting from pack stock trampling and pawing the ground. Clearing the area of surface debris, which may include artifacts, in order to make the camp more comfortable, is an effect that is an alteration to the physical remains of a heritage resource site. Individuals may collect artifacts intentionally or unintentionally. Historic remains may be viewed as trash, and removed from a site. Subsurface deposits may be disturbed or damaged by excavating for tents, fire rings, kitchen facilities, or latrines. Use of historic structures may alter the integrity of those structures.

Table 3.20: Activities that were found to have associations with effects to heritage resources.

Service/Use	Activity	Indicator	Potential Effect
Facilities	Operation of Headquarters & spike stations	- Disturbance to surface and sub-surface deposits - Erosion - Artifact collection - Alteration of historic features or buildings	Potentially Adverse/Adverse
Designated Stock Camps	Stock holding and watering areas for pack stock as well as associated camping activities	- Disturbance to surface and sub-surface deposits - Removal of artifacts (intentionally or unintentionally) - Displacement of artifacts or features - Alteration of historic features or building	Potentially Adverse/Adverse
Trails	Trail use	- Damaging, destroying or displacing features or artifacts - Disturbance to sub-surface deposits - Erosion - Incidental realignment	Potentially Adverse/Ambiguous/No Effect
Grazing Areas	Dispersed or designated grazing of pack stock	- Damaging, destroying or displacing features or artifacts	Ambiguous Effects

Impacts to heritage resources tend to be localized and site-specific. Management measures to reduce or eliminate effects to specific heritage resources will be developed for each affected site. Those management measures will be included as a condition of the operating permit. All sites with ambiguous effects from grazing and trail use are identified as impact monitoring candidates. Should effects be noted, protection measures for these sites can include trail reroutes and no authorization of some requested use trails.

Management Measures (including, but not limited to):

- No action, where a Forest Supervisor determines that protective actions are inappropriate or infeasible;
- Relocating or redirecting activities and programs causing impacts;
- Capping or covering sites with earth, rock, or plants that hold soil and discourage excavation, or other appropriate material;

- Educational and interpretive use as appropriate to the operating area;
- Law enforcement;
- Stabilization;
- Data Recovery; and
- Sparse lithic scatters may be managed using the California Archaeological Resource Identification and Data Acquisition Program: Sparse lithic Scatters (CARIDAP) (Jackson et al. 1988).

A monitoring program to monitor site condition and the effectiveness of mitigation measures will be designed when the final alternative is chosen. Monitoring for effects (impact monitoring) is necessary to determine if pack station operations and associated activities are having any effect to a heritage resource.

Conditions and limitations to protect heritage resources will be attached to each SUP, and subsequent operating plans.

Significance of Heritage Resources

A large percentage of the APE for this project has been systematically examined for heritage resources. One hundred and six heritage resource sites have been documented within the APE. Heritage resources are non-renewable, fragile and highly susceptible to deterioration. These sites contain important paleo-climatic and cultural information that can yield new and significant information on the past climate and historic and prehistoric use of the High Sierra environment. Integrity of setting and design are important elements to preserve and manage. Equally important are the social and spiritual values ascribed to these resources by contemporary aboriginal tribes.

The administrative and historic files of the SNF contain numerous interviews, photographs and other documentary testimonials associated with residents and early settlers of the area who also place great value on places potentially affected by this project. This strong historical connection to the current planning area has been expressed by many more recent users of the High Sierra. Pioneer packers, livestock grazers, hydroelectric power developers, and recreationists have left a rich legacy of use lore that is valued by many contemporary environmental organizations, historical societies and individuals within the affected local communities.

For the purposes of this project, a Programmatic Agreement entitled *Programmatic Agreement among the Pacific Southwest Region, USDA Forest Service, California State Historic Preservation Officer, Nevada State Historic Preservation Officer, & the Advisory Council on Historic Preservation Regarding the Identification, Evaluation, & Treatment of Historic Properties within the Area of Potential Effect of Pack Station Operations & One Outfitter Guide Operation on the Inyo and Sierra National Forests, California & Nevada* (PA) – has been developed to implement recommendations for heritage resource management through this and other NEPA analyses. This PA identifies standard protection measures and monitoring standards to identify, reduce or eliminate pack stock effects to heritage resources. The PA will also stipulate that an HPMP, which

will address all affected heritage sites, be developed for each pack station. A copy of the PA is contained in the project record.

Many resources within the APE have been formally evaluated in the past and are documented as being NRHP eligible based on National Register criteria. Many sites are in the process of being evaluated and are also likely to be found to be important under National Register criteria, including the pack station facilities. Additionally, the USDA Forest Service is mandated by law to protect the confidentiality of heritage resource site locations. To the extent possible, details of survey and findings are documented but exact site locations are protected and not disclosed in this assessment**.** Site locations are identified in the appropriate ARRs, which are included in the Project Record.

3.1.4.3 Overview – Common to All

Affected Environment

Sierra National Forest Packer History

With some exceptions, system trails in use today are documented to have been used by commercial pack stock operators for at least ninety years. In the early part of the 20th century, fish stocking of high elevation lakes and ponds created a recreational opportunity that did not previously exist. A system of trails to access these lakes and ponds evolved in the early part of the last century expanding the trail system beyond the earlier American Indian travel and trade routes.

Additionally, hunters have used trails and areas where deer tended to congregate before the winter migration to the adjacent lowlands during the early fall. Favored hunting areas are located adjacent to the South and Middle Forks of the San Joaquin River, in the Kaiser Wilderness, and north of the Dinkey Lakes Wilderness. Pack station use of these areas in the fall of each year has tapered off dramatically in recent years. Historic spike stations catering to hunters (such as Sample Meadow) were abandoned in favor of higher scenic-value locations.

Pack stations on the SNF also tended to relocate as the motorized transportation system developed and expanded in the early to mid-1900s. The station headquarters facilities tended to be built fortuitously and inexpensively with materials at hand. Unsympathetic repairs and incongruous additions to buildings have also diminished the historic integrity of some pack station facilities. Conversely, some pack station operators have worked diligently to maintain 1920s era buildings in near pristine historic condition. Not all of the pack station facilities are old enough to qualify for the NRHP.

In addition to the facilities themselves, commercial pack station operations affected the early development of the recreational trail system as it exists today. Road development in the first half of the 20th century profoundly affected where pack station headquarters were located and a shifting of pack stations to the "end of the road" is apparent on the SNF. A decline in business from deer hunters has also affected the location of spike stations and pack station use patterns across the landscape.

Historically, commercial packers were strong advocates for the establishment of the congressionally designated wilderness system. The 1964 Wilderness Act essentially halted the "end-of-the-road" relocations particularly on the High Sierra Ranger District. One class of historic site identified during project survey was the remains of abandoned headquarters and spike stations. The SNF packers have played major roles in the development of the recreation and transportation systems as they are today.

Prehistoric and Historic Heritage Resources

Prehistoric site density is quite high in the project area. Heritage resources along the trails, margins of grazed meadows and in the vicinity of other pack station operations exhibit a wide diversity of site types including, but not limited to large archaeological villages and camp sites, places of important trans-Sierran trade gatherings, food processing and storage facilities, obsidian tool production localities, sacred areas and historic travel trails.

Many of the trails used by contemporary commercial pack stock operators overlap almost exactly with earlier paths of prehistoric American Indian travel due to geographic constraints in the mountainous High Sierra. Several American Indian travel corridors have been documented to coincide with current system trails on the SNF, including the trans-Sierran Mammoth Trail and trails to and from YNP. The YTPS, HSPS, D&F and MPS headquarter facilities are located on or near major historic trail hubs. This overlapping use has resulted in a relatively high number of heritage resource site/trail coincidence (Morgan 2006).

Prehistoric sites within the project area are primarily associated with the Western Mono tribes of the western side of the Sierra Nevada, but some sites are associated with Chukchansi Yokuts or Southern Sierra Miwok. Many of these sites also have ethnographic documentation that indicates a fairly recent history of tribal use. Aboriginal use at many sites has a long and uninterrupted history. In some cases, tribal use continues at sites that have a known occupational history that span thousands of years.

Historic sites within the project area include remnants of railroad logging, ranching, homesteading, commercial pack stock operations, mining, and hydroelectric power development. Each of these historic use categories has an array of sites and features associated with it. For example, features associated with railroad logging operations may be work camps, can dumps, railroad grades, trestle remnants, and discarded equipment. Sites associated with commercial pack stock operations may include headquarter and spike stations, trail blazes, drift fences, and stock camps.

Hydroelectric power development in the 20th century has had the most profound overall effect on the landscape and the heritage resources within the affected area. For the most part, this work was done before the enactment of federal laws requiring environmental and archaeological assessments prior to construction. The creation of Bass Lake, Huntington Lake, Florence Lake, Lake Thomas A. Edison, Courtright and Wishon Reservoirs has dramatically affected the landscape and pattern of forest recreational use. Hundreds of heritage resource sites were impacted during these massive reservoir

construction projects. Roads associated with these projects followed historic Native American travel routes and opened wide expanses of back country land to recreational use. These roads are important to understanding how pack station headquarters and operations came to be located where they are, particularly on the High Sierra Ranger District.

Historic sites associated with these hydroelectric power developments abound and include large and small work camps, can dumps, the existing hydroelectric facilities themselves, roads, bridges, transmission and utility lines, penstocks and pipelines, even entire towns. Many other types of historic sites can be directly and indirectly attributed to the construction and maintenance of hydroelectric power development in the High Sierras.

Environmental Consequences

Alternative 1

Direct Effects

All pack station buildings and structures will be evaluated before removal to determine if they are eligible to the NRHP. Privately owned pack station buildings will be evaluated for NRHP eligibility before they are removed. If any of the buildings or structures is found to be eligible, then removal of those buildings or structures would be an adverse effect. Underlying or associated heritage resources will also be evaluated before the pack station buildings and structures are removed. If any of these heritage resource sites are found to be eligible to the NRHP, then ground disturbance during the removal of pack station facilities would be an adverse effect. Mitigation of these effects will be necessary, and tribal consultation will be required. The facility removal process will require a different NEPA analysis and decision, thus will have the same level of analysis.

Abandonment of commercial pack stock use of trails, grazing areas, and stock camps will diminish ongoing impacts from incision, realignment, trampling, and displacement or damage of artifacts or features to the heritage resources in these operating areas. This will benefit some heritage resources by eliminating ongoing effects to the physical remains and integrity of some sites, thereby retaining the potential for these sites to be determined eligible to the NRHP.

In this alternative the Dinkey Lakes Wilderness direction for trails would revert to the guidelines contained in the 2001 Ansel Adams, John Muir, and Dinkey Lakes Wildernesses Plan, Appendix C, and there will be no direct effects to heritage resources.

There are a total of 106 known heritage resource sites within the APE, not including the AA/JM Wildernesses. Under Alternative 1, there are 10 sites with direct effects, and 96 sites with no direct effects. See Table 3.21 below for a summary of the direct effects of Alternative 1 by analysis unit.

Indirect Effects

It is not expected that there will be an increase in the recreational use of trails if the pack stations were no longer operating, with the exception of some of the use trails in the NED

AU. The potential for this increase is indicated by the placement of signs along some of the use trails in this AU prohibiting bicycle use. Some of these trails may see an increase in recreational use which will increase the opportunity and potential for looting and vandalism of heritage resources. These activities affect the physical remains and integrity of some of the heritage resource sites along these use trails.

Where use trails occur within an AU, any maintenance occurring on those trails by the pack stations would no longer take place. This maintenance is generally confined to removing fallen trees blocking the trails, with the exception of the trails in the NED AU. The YTPS performs a greater level of maintenance on some of the use trails in the NED AU, such as installing water bars to reduce erosion. Elimination of this maintenance will not benefit heritage resources in these areas. Some erosion will be expected if there is no maintenance on these trails, and multi-trailing from public use of the trails will be more likely. Erosion and multi-trailing have the potential to affect the physical remains and integrity of a heritage resource site.

Although the abandonment of trails will eliminate ongoing direct effects to heritage resources, simply removing stock from trails will not result in improved resource conditions everywhere. Trails that are not stable, particularly in the NED AU, may stabilize over time, while some may not. Trails that do not stabilize over time have the potential to impact the physical remains and integrity of some heritage resource sites.

There will be no indirect effects to heritage resources from the abandonment of commercial pack stock grazing.

Campsites used by commercial pack stations will be no longer be used; however, simply eliminating this use will not eliminate resource impacts. Well established camps developed for use by the commercial pack stations that are not rehabilitated encourage use by the general public. These campsites may overlie, be adjacent to, or in the vicinity of heritage resources. Camping on a heritage resource site can result in damage to the subsurface deposits from excavated fire pits and leveling the ground for tent set-ups, and from the removal of artifacts by campers. All of these activities can diminish the physical remains and integrity of heritage resources.

Cumulative Effects

See Cumulative Effects Common to All Analysis Units.

Alternatives 2 and 3

Direct Effects

There are a total of 106 known heritage resource sites within the APE, not including the AA/JM Wildernesses. Under Alternatives 2 and 3, there are 46 heritage resource sites with direct effects, and 60 sites with no direct effects from the employment of environmental protection measures or avoidance. Of the 46 heritage resource sites with direct effects, 45 are sites with ambiguous effects. These ambiguous effects may be determined to be no direct effect through monitoring. If direct effects are determined, then actions will be taken to eliminate or mitigate these effects.

One heritage resource site will be potentially adversely affected by the operations of the YTPS and MPS until the trail that bisects the site is rerouted.

See Table 3.21 below for a summary of the direct effects of Alternatives 2 and 3 by analysis unit.

See each AU for site specific direct effects.

Direct Effects Common to All Analysis Units
Ambiguous effects are treated as direct effects until determined otherwise through monitoring.

The effects of Alternatives 2 and 3 have been combined. The direct effects to heritage resources for Alternative 3 are the same as Alternative 2; however destination management zones and designated stock camps would benefit heritage resources since use is regulated and no stock camps will be designated within the boundary of a heritage resource site.

Indirect Effects
There are no indirect effects to heritage resources from pack station facility operations.

The indirect effects to heritage resources of Alternatives 2 and 3 would be from the existence of use trails created by commercial pack stations. Use trails provide access to remote areas by the general public. This access provides an opportunity for potential impacts to heritage resources from disturbance to surface and subsurface deposits from looting and vandalism. These activities have the potential to impact the physical remains and integrity of heritage resources.

There are no indirect effects to heritage resources from commercial pack stock grazing.

Campsites used by commercial pack stations that are adjacent to, or in the vicinity of heritage resources are also used by the general public. Camping on a heritage resource site can result in damage to the subsurface deposits from excavated fire pits and leveling the ground for tent set-ups, and from the removal of artifacts by campers.

Cumulative Effects
See Cumulative Effects Common to All Analysis Units.

Table 3.21. Summary of Direct Effects for Alternatives 1, 2 and 3 by analysis unit.

SUP Analysis Unit	Total # of Known Sites in APE	Heritage Sites with Direct Effects*			Heritage Sites with No Direct Effects		
		Alt. 1	Alt. 2	Alt. 3	Alt. 1	Alt. 2	Alt. 3
Nelder	35	1	6	6	34	29	29
Clover	21	1	11	11	20	10	10

SUP Analysis Unit	Total # of Known Sites in APE	Heritage Sites with Direct Effects*			Heritage Sites with No Direct Effects		
		Alt. 1	Alt. 2	Alt. 3	Alt. 1	Alt. 2	Alt. 3
Edison	9	1	7	7	8	2	2
Chinquapin	1	0	0	0	1	1	1
Florence	7	3	2	2	4	5	5
Kaiser	7	0	2	2	7	5	5
East Huntington	11	2	8	8	9	3	3
West Huntington	1	0	1	1	1	0	0
Coyote	5	0	5	5	5	0	0
Dinkey Lakes	1	0	0	0	1	1	1
Helms	2	0	2	2	2	0	0
Nelson	0	0	0	0	0	0	0
Dinkey Front Country	3	1	2	2	2	1	1
Tule Meadow	3	1	0	0	2	3	3
Wishon	0	0	0	0	0	0	0

*Direct effects include ambiguous effects, which may be determined through monitoring to have no effects from commercial pack stock.

Cumulative Effects Common to All Analysis Units

To analyze the cumulative effects of the study area, a cumulative effects analysis area was identified. This cumulative effects analysis area includes the APE and the footprint of the historic resources of the Madera Sugar Pine Company, the Madera Flume & Trading Company, the Big Creek Diversion, the Grizzly Creek Trail, the Rainier Creek Diversion, the Yosemite Stage Road, the Yosemite Water Supply System, and the SCE Big Creek Hydroelectric System. This analysis boundary includes areas within the AUs, as well as area outside of the AUs. The time frame of the analysis is 20 years, the length of the SUP.

Past, present, and future actions in the cumulative effects analysis area have impacted heritage resources through the disturbance of subsurface deposits, displacement, damage or destruction of surface artifacts, removal of artifacts or features, alteration of historic features, the sloughing and breaking down of features caused by human actions, and erosion resulting from human actions.

Past Actions

Lingering effects from past vegetation management/actions and recreation management/actions have affected heritage resources in the cumulative analysis area. Effects of vegetation management/actions to heritage resources are from timber

harvest/fuel wood cutting (incl. road building related to timber harvest). Effects of recreation management/actions to heritage resources are from the issuance/reissuance of various SUPs.

Vegetation Management/Actions
Timber harvest is documented in the cumulative analysis area from the late 1800s into the present. Timber harvest activities can affect heritage resources through ground disturbance, the destruction of surface artifacts and features, and subsequent erosion. These are impacts that will continue to affect the integrity of a site. Forest Service sponsored reforestation projects from the 1970s into the 1980s had an impact on one heritage resource site.

The action of road construction, which in the past was primarily a result of timber harvest projects, can also have impacts to heritage resources from the disturbance of surface and subsurface archeological deposits, and the alteration of historic features. These impacts will continue to affect the integrity of a site. In the cumulative analysis area, the conversion of railroad grades and historic roads to modern roads has impacted two heritage resource sites.

Recreation Management/Actions
Past recreation management/actions that have impacted heritage resources within the cumulative effects analysis area relates to the establishment and operation of the seven pack station facilities, some of which have been in operation since 1924; the development of spike camps; the establishment of pack stock camps; and the establishment of a widespread system of use trails. In the past, the issuance/reissuance of various SUPs to these operations did not regularly consider a broad range of effects to heritage resources. The heritage resources that have been impacted from these past operations are both historic and prehistoric; effects are the disturbance to surface and subsurface deposits, and the destruction, alteration, or removal of artifacts and features. These impacts will continue to affect the integrity of heritage resources; erosion resulting from these past recreation management/actions will continue to degrade heritage resource sites.

<u>Present Actions</u>
Effects from present vegetation management/actions and recreation management/actions are affecting heritage resources in the cumulative analysis area. Effects of vegetation management/actions to heritage resources are from commercial livestock grazing. Effects of recreation management/actions to heritage resources are from motorized vehicle use (OHVs), the issuance/reissuance of various SUPs, and recreational activities: fishing, camping, backpacking, mountain biking, trapping.

Vegetation Management/Actions
Commercial livestock grazing affects heritage resources through trampling and trailing, which displace or damage surface artifacts and features. The installation of water troughs and salt licks within or near a heritage resource site may damage features, or concentrate use within the heritage resource site boundary, which will further impact the surface and subsurface deposit of the site. Currently there are several commercial grazing allotments

which may be contributing to effects on heritage resources particularly near meadows. Associated with these allotments, are historic cow camps that are still in use. Alterations, maintenance and remodels are impacting the historic integrity of some of these historic resources.

Stock driveways, associated with commercial livestock grazing, may also be impacting heritage resource sites through the displacement or damage of surface deposits. Stock driveways within the cumulative analysis area are being used for cattle drives, as well as being used as equestrian trails by commercial pack operators and the public, as hiking trails, and as OHV routes. Nine sites along these stock driveways are being impacted by this combination of use.

Recreation Management/Actions
Motorized vehicle use (OHVs) affects heritage resources through the disturbance of surface and subsurface archeological deposits. Trails can become incised and eroded which will further degrade these deposits. Motorized vehicle use is impacting several heritage resource sites within the cumulative effects analysis area.

Operations of the seven pack stations within the cumulative analysis area continues to impact heritage resource sites in the same manner as described under past effects.

Adjacent to the NED AU, the Tenaya Lodge is permitted to conduct hikes into the forest area. The Lodge also directs its visitors through two heritage resources for biking and hiking. This use has created a trail through one site that is based on top of an historic feature. This feature is being damaged from erosion and sloughing of the edges of this feature as these recreationists enter or exit the trail at various points. Impacts are also occurring to a historic structure that is being used for picnicking, dumping trash, and toilet facilities. An historic dump associated with this heritage resource site is being looted. These activities affect the historic integrity of heritage resource sites.

The Madera Irrigation District has a SUP for what has now become a historic structure. Routine maintenance and unsympathetic repairs of this structure is impacting the historic integrity of this heritage resource site.

Several routinely used dispersed camping areas coincide with, and impact heritage resources. Dispersed camping displaces surface and subsurface archeological deposits, and provides an opportunity for vandalism and looting of heritage resources. One heritage resource is being impacted by the use of a public campground; impacts from public campgrounds are the same as for dispersed camping areas.

Routine road maintenance has a continuing impact on heritage resources. This maintenance displaces surface deposits, disturbs subsurface deposits, and alters or damages historic features. Road use through the Dillon Orchard area is contributing to the loss of an historic feature of a heritage resource site which affects the historic integrity of that site. Another road bisecting a heritage resource site has been padded with gravel to minimize the effects of road maintenance activities.

The establishment, operations and maintenance of the Big Creek Hydroelectric System impacts heritage resource sites from disturbance or destruction of surface and subsurface archeological deposits, disturbance or removal of historic features, and unsympathetic repairs to historic structures and features. There are many heritage resource sites within the cumulative analysis area that have been impacted by this hydroelectric system.

Future Actions

Effects from future vegetation management/actions and recreation management/actions may affect heritage resources in the cumulative effects analysis area. Effects of vegetation management/actions to heritage resources are from commercial livestock grazing. Effects of recreation management/actions to heritage resources are from SUPs and renewals, and trail maintenance.

Vegetation Management/Actions

The way commercial livestock grazing affects heritage resources was previously described under Present Actions. Future NEPA analysis for the issuance of commercial livestock grazing permits will address these effects, and standard protection measures found in the two programmatic agreements described in the conclusion section will be used to eliminate or mitigate ongoing impacts to heritage resource sites.

Recreation Management/Actions

While the issuance/reissuance of SUPs, and trail maintenance has the potential to affect heritage resources, these future activities will be designed to protect heritage resources from impacts through the application of standard protection measures found in the two programmatic agreements described in the conclusion section. If these standard protection measures are not applied, or fail, then surface and subsurface deposits of heritage resource sites would be affected.

SCE's Big Creek Hydroelectric System will receive a 30-to-50 year operating license from the Federal Energy Regulatory Commission. Terms and conditions of the operating license have been designed to avoid or mitigate impacts to heritage resources

Conclusion

Many of the past actions that impacted heritage resources within the cumulative effects analysis area occurred prior to the establishment of the National Historic Preservation Act (NHPA) in 1966, and the establishment of the NEPA process in 1969. Both of these enactments have helped to minimize ongoing effects to heritage resources already impacted.

Additionally, in 1996 the SNF entered into two programmatic agreements which provide for protections of heritage resource sites during project operations. These programmatic agreements have been used extensively in the cumulative effects analysis area. Future actions in the cumulative effects analysis area will frequently use a "flag and avoid" technique, or other protection, that has provided for no effect projects since 1996.

Alternative 1 Cumulative Effects:
Removal of the pack station base facilities would eliminate future impacts by the seven pack stations to prehistoric properties at those locations, but previous impacts to those resources can not be rehabilitated. Removal of historic facilities may be an adverse effect if they are determined to be eligible to the NRHP. Discontinuation of the use of trails by the pack stations will eliminate the ongoing effects to heritage resources from these operations where these trails cross heritage resource sites. Commercial pack stock grazing and the use of designated stock camps will be abandoned, thereby eliminating the effects of these activities to heritage resources.

Since there are direct and indirect effects for Alternative 1, and effects from past, present, and future actions to heritage resources within the cumulative effects analysis area, removal of pack station operations will have a cumulative effect to heritage resources. The magnitude of the cumulative effect can not be determined until the historic facilities are evaluated for NRHP significance. Alternative 1 has the potential to have significant cumulative effects if multiple heritage resource sites (pack station facilities) are determined to be NRHP eligible. The removal process will be an adverse effect to these heritage resources, and any impacts to underlying NRHP eligible archeological sites during the removal process will also be an adverse effect.

Alternative 2 and 3 Cumulative Effects:
Under these alternatives, impacts to the heritage resources located at the base facilities will be mitigated through the implementation of HPMP's. Use trails that impact heritage resources will either not be permitted, or will be monitored to determine if there are ongoing impacts to the resources they bisect; if effects are determined then actions will be taken to eliminate or mitigate these effects. Any commercial pack stock grazing areas within a heritage resource site will be monitored to determine if there are direct effects to those sites; if effects are determined then actions will be taken to eliminate or mitigate these effects. No designated stock camps will be located within a heritage resource site. A system trail which bisects one heritage resource site will continue to be used.

Alternatives 2 and 3 have been designed to have no effects to heritage resources, or to mitigate any effects, with the exception of one heritage resource site bisected by a system trail. This site will be potentially adversely affected by pack station operations until the SNF reroutes the trail.

Since there are direct and indirect effects for Alternatives 2 and 3 to this one site, and effects from past, present, and future actions to heritage resources in the cumulative effects analysis area, permitting the operations of the pack stations under Alternatives 2 and 3 will have a cumulative effect to heritage resources. The cumulative effect appears to be minimal, since it affects only one site out of 106 total sites in the cumulative effects analysis area. Additionally, impacts from commercial pack station use are limited to the trail prism within the site boundary, and the remainder of the site is not being impacted by commercial pack stock.

3.1.4.4 Analysis Unit Level Evaluation

NELDER (NED)

Affected Environment

There is commercial pack stock grazing and designated stock camps within this AU. The only pack station facilities located within the NED AU is the YTPS Jackson Road headquarters. The YTPS services and uses within the NED AU include 1 and 2 hour rides, full and half day rides, full service overnight trips, and spot and dunnage trips. They use a combination of use trails, system trails, and system roads. They are authorized to use the Ansel Adams Wilderness. Trips outside of the normal operating area can be approved upon request. See Appendix B for a detailed list of facilities. The YTPS operates exclusively within the NED AU. The MPS is the only other pack station which also operates within a portion of the same AU. The YTPS has a destination quota for the MWSR corridor. There are no heritage resource concerns in this area.

Prehistorically, the NED AU was occupied by the Western Mono (Monache), the Southern Sierra Miwok, and possibly the Chukchansi Yokut. Evidence suggests that the occupation of these three groups was widely distributed throughout the NED AU. These occupations represent seasonal living areas, hunting areas, and travel corridors. Historic occupation of the AU includes ranching, mining for gold, silver, and other minerals, homesteading, commercial ventures such as lumbering with oxen, a widespread system of railroad logging, large scale and small scale sawmills, and early pack stock operations. Remnants of these occupations can be found throughout the NED AU, primarily near meadows and water sources. Most of these occupations began in the mid-1800s; some activities, such as ranching and mining, have transitioned into the modern era. These occupations have also resulted in the development of a network of roads throughout the AU.

In support of the analysis for the proposed action, in the field season of 2004 a total of 950 acres of the APE within the NED AU was surveyed by a 1-2 person crew of professional archeologists. This survey represents new survey coverage, updated survey coverage, or resurvey of site specific use areas within the APE. All new survey used intensive coverage (0-30 meter transects), and was documented with daily survey logs. All use trails, system trails, campsites, and grazing areas were included in the new survey, with the exception of a low priority grazing area at Grouse Meadow. This meadow was previously intensively surveyed, and was not re-surveyed for this project. A use trail segment, NED 21 (north of Goat Meadow), and a proposed stock camp at Soquel Meadow could not be located. Both of these areas, however, were previously intensively surveyed. With the combination of previous survey, and new survey coverage, no part of the APE remains unsurveyed.

New survey coverage resulted in the identification and recordation of 21 additional heritage resource sites. In addition to the 21 new sites recorded, 14 known sites within the APE were revisited. Site records were updated where necessary. Site assessments for

pack stock use were documented on Trail Check List forms. There are a total of 35 heritage resource sites within the NED AU APE.

Environmental Consequences

Alternative 1

Direct Effects

The YTPS headquarters will be evaluated before removal to determine if it is eligible to the NRHP. If any of the buildings or structures is found to be eligible, then removal of those buildings or structures would be an adverse effect. An underlying heritage resource has been determined to be eligible to the NRHP; ground disturbance to this heritage resource site during the removal of pack station facilities would be an adverse effect. Mitigation of these effects and tribal consultation will be required. The facility removal process will require a different NEPA analysis and decision.

Abandonment of the YTPS use of trails, grazing areas, and stock camps will diminish ongoing impacts to heritage resources from incision, realignment, trampling, and displacement or damage of artifacts or features to the heritage resources in these operating areas. This will benefit some heritage resources by eliminating ongoing effects to heritage resources, thereby retaining the potential for these sites to be determined eligible to the NRHP.

The direct effects of Alternative 1 will not benefit some of the heritage resources in the NED AU, and minimally benefit other heritage resources in the AU. There will be some diminished impacts to the characteristics that qualify these resources for inclusion in the NRHP from the abandonment of commercial pack station use of trails, grazing areas, and camps; however, there will be potentially adverse/adverse effects to the pack station headquarters and underlying heritage resource site. These effects will diminish the characteristics that qualify heritage resources for inclusion in the NRHP.

Indirect Effects

It is expected that there will be some increase in the recreational use of some of the use trails in this AU when the YTPS operations are removed. This will increase the opportunity and potential for looting and vandalism of heritage resources. These activities will affect the physical remains and integrity of some of the heritage resource sites along these use trails.

The YTPS performs some maintenance on some of the use trails in the NED AU, such as installing water bars to reduce erosion and cutting out downed trees from trails. Elimination of this maintenance will not benefit heritage resources in these areas. Some erosion will be expected if there is no maintenance on these trails, and multi-trailing from public use of the trails will be more likely. Erosion and multi-trailing has the potential to affect the physical remains and integrity of heritage resources.

Although the abandonment of trails in the NED AU by the YTPS will eliminate ongoing direct effects to heritage resources, simply removing stock from trails will not result in improved resource conditions everywhere. Trails that are not stable may stabilize over

time, while some may not. Trails that do not stabilize over time have the potential to impact the physical remains and integrity of heritage resources.

Well established camps developed for use by the commercial pack stations that are not rehabilitated encourage use by the general public. These campsites may overlie, be adjacent to, or in the vicinity of heritage resources. Camping on a heritage resource site can result in damage to the subsurface deposits from excavated fire pits and leveling the ground for tent set-ups, and from the removal of artifacts by campers. All of these activities have the potential to affect the physical remains and integrity of heritage resources.

The indirect effects of Alternative 1 will not benefit heritage resources. Although the pack station will not be operating, trails and established camps will still be used by the public. Trail maintenance will not be performed. Trails that do not stabilize over time will continue to impact heritage resources. These indirect effects have the potential to contribute to potentially adverse/adverse effects on some heritage resource sites in the NED AU, which will affect the physical remains and integrity of these heritage resources.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct Effects

The YTPS headquarters is having a potentially adverse/adverse effect to an underlying prehistoric component of a heritage resource site, and also to the historic component of the same site. Under these alternatives, continued operation of the headquarters is approved with the stipulation/clarifier that an HPMP is implemented. This HPMP will provide protection measures to mitigate the effects of the pack station operations on heritage resource sites. Monitoring is required to verify compliance.

The Madera Sugar Pine Railroad (MSP) system has a widespread matrix of linear features within this AU. Linear features of this heritage resource site underlie segments of use trails NED09, NED11, and NED20. NED 9 is also bisecting another heritage resource site. Stock use of these segments has resulted in potentially adverse/adverse effects to these heritage resources. Under these alternatives the use of NED09, NED11, and NED20 segments coinciding heritage resource sites would be prohibited. Monitoring is required to verify compliance.

Use trail NED03, makes one perpendicular crossing of a linear heritage resource site. This crossing is limited in area, and is in a location of stable soils that are not eroding, nor is the trail deeply incised. Under these alternatives the continued use of this trail crossing is approved with the stipulation/clarifier that there will be no additional crossings and monitoring is required to verify compliance.

Use trail NED26 bisects a heritage resource in the vicinity of Biledo Meadow. Stock use of this trail has resulted in potentially adverse/adverse effects to this heritage resource. Under these alternatives the use trail NED 26 is prohibited. Monitoring is required to verify compliance.

Use trail NED27, which is approximately 25 meters in length, located in the vicinity of Roads 5S06 and 5S06X runs through a portion of a heritage resource site. This trail is being used as a "cut-off" between the two roads. Stock use of this trail has resulted in potentially adverse/adverse effects to this heritage resource. Under these alternatives the use trail NED 27 is prohibited. Monitoring is required to verify compliance.

Trail 22E25, Segment 2, trail 23E02, Segment 1, and trail 23E03, bisect three separate heritage resource sites. In the case of these three sites, the impacts appear to be minimal and not ongoing; therefore, the effects are considered ambiguous. Continued use of these trails is approved with the stipulation/clarifier that these sites will be monitored to determine if pack station operations and associated activities are having any effect.

Trail 23E01 (Chiquito Creek Trail) bisects a heritage resource site. Stock use of this trail from YTPS and MPS has resulted in potentially adverse/adverse effects to this heritage resource. Although the trail is also used by the public, eliminating commercial pack station operations on the section of trail within the heritage resource site would reduce impacts to the heritage resource site. Under these alternatives, the trail will remain open until a reroute is completed.

There are ambiguous effects to features of two heritage resource sites from the grazing of YTPS stock in Goat Meadow and Soquel Meadow. Under these alternatives, grazing is approved with the stipulation/clarifier that these sites will be monitored to determine if pack station operations and associated activities are having any effect.

Activities associated with stock camps have resulted in potentially adverse/adverse effects to three heritage resource sites. Under these alternatives, the following designated stock camps are prohibited: Tin Can Meadow Camp, Grizzly Creek Camp, and Pike Cabin Camp. Monitoring is required to verify compliance.

Use of the originally proposed Biledo Meadow assigned site has resulted in potentially adverse/adverse effects to a heritage resource site. Under these alternatives, the originally proposed Biledo Meadow assigned site is not permitted. An alternate location has been identified that has no effects on heritage resources, and this alternate location is approved with the stipulation/clarifier that improvements remaining at the original assigned site location be removed using minimal impact methods approved by the SNF. Monitoring is required to verify compliance.

Within this AU, there are 11 heritage resource sites with adverse/potentially adverse effects, and five heritage resource sites with ambiguous effects. Through the application of management options under Alternatives 2 and 3, all potentially adverse/adverse effects from commercial pack station operations will be eliminated through avoidance, or

mitigated through the implementation of an HPMP, with the exception of one heritage resource site. This site will continue to be potentially adversely impacted until Trail 23E01 is rerouted. Heritage resource sites **with ambiguous effects** will be monitored to determine if pack station operations and associated activities are having any effect.
The direct effects of Alternatives 2 and 3 will benefit the heritage resources in the NED AU. There is only one heritage resource site that will continue to have some diminished impacts to the characteristics that qualify it for inclusion in the NRHP; all other heritage resource sites will not be potentially adversely/adversely affected and would retain the characteristics that qualify these resources for inclusion in the NRHP.

Indirect Effects
The indirect effects to heritage resources of Alternatives 2 and 3 would be from the existence of use trails created by commercial pack stations. Use trails provide access to remote areas by the general public. This access provides an opportunity for potential impacts to heritage resources from disturbance to surface and subsurface deposits from looting and vandalism. These activities have the potential to affect the physical remains and integrity of heritage resources.

Campsites used by commercial pack stations that are adjacent to, or in the vicinity of heritage resources are also used by the general public. Camping on a heritage resource site can result in damage to the subsurface deposits from excavated fire pits and leveling the ground for tent set-ups, and from the removal of artifacts by campers. These activities have the potential to affect the physical remains and integrity of heritage resources.
The indirect effects of Alternatives 2 and 3 will have minor effects to the heritage resources in the NED AU. There will be some impacts to heritage resources from public access through trails, and some use of established campsites by the public, however, this extra use by the public is not expected to have more than a minimal impact on heritage resources. These impacts may not reach the level of potentially adverse/adverse effects, and heritage resource sites would still retain the characteristics that qualify these resources for inclusion in the NRHP.

Cumulative Effects
Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

CLOVER (CLO)

Affected Environment

There are no designated stock camps within the CLO AU. MPS has requested stock grazing in Soldier Meadow. MPS is currently authorized to maintain a pack station operation, store, restaurant, entrance sign, lodge, barracks, corrals, water system, and associated facilities. This permit also covers outfitting and guiding on the Sierra National Forest lands including the Ansel Adams Wilderness. The Miller Meadow headquarters facilities are located at Miller Meadow, and there are no other facilities in the AU. See Appendix B for a detailed list of facilities.

MPS is the sole commercial pack stock operator in the CLO AU. The MPS also operates within a small portion (Chiquito Trail) of the NED AU.

Prehistorically, the CLO AU was occupied by the Western Mono for seasonal living, food gathering and hunting areas, travel corridors, and possibly "get-together" areas for trading.

Historic occupations of the CLO AU included mining, sheep and cattle grazing, logging and public recreation. Most of these occupations began in the mid-1800s and have transitioned into the modern era. These occupations have also resulted in the development of a network of roads and trails throughout the AU.

Trails, stock driveways, roads, grazing areas and headquarters were surveyed for heritage resources, either in the past (and documented for other undertakings), or in 2004/2005 specifically for the Pack Station Permit Reissuance. Thirty acres in and around Soldier Meadow, and thirteen miles of trails and stock driveways were surveyed with intensive coverage (0-30 meter transects) in 2004/2005. With the combination of previous survey, and new survey coverage, no part of the APE in non-wilderness remains unsurveyed.

There are a total of twenty-one heritage resource sites within the non-wilderness portion of the APE in the CLO AU. Nineteen previously recorded heritage resource sites were revisited to inspect for impacts of stock use. Site records were updated where necessary, and site assessments for pack stock use were documented on Trail Check List forms. Two sites were analyzed from data in the existing site record.

Environmental Consequences

Alternative 1

Direct Effects

The MPS headquarters will be evaluated before removal to determine if it is eligible to the NRHP. If any of the buildings or structures is found to be eligible, then removal of those buildings or structures would be an adverse effect. An underlying heritage resource will be evaluated to determine if it is eligible to the NRHP; ground disturbance to this heritage resource site during the removal of pack station facilities will be a potentially adverse/adverse effect. Mitigation of these effects and tribal consultation will be required. The facility removal process will require a different NEPA analysis and decision.

Abandonment of the MPS use of trails will diminish ongoing impacts to heritage resources from incision, realignment, trampling, and displacement or damage of artifacts or features to the heritage resources in these operating areas. This will benefit some heritage resources by eliminating ongoing effects to heritage resources, thereby retaining the potential for these sites to be determined eligible to the NRHP.

The direct effects of Alternative 1 will not benefit some of the heritage resources in the CLO AU, and minimally benefit other heritage resources. There will be some benefit from the elimination of ongoing effects from trail use by pack stock; however, there will

be potentially adverse/adverse effects to the pack station headquarters and underlying heritage resource site which will affect the physical remains and integrity of these heritage resources.

Indirect Effects
The MPS performs some maintenance on some of the trails in the CLO AU. This maintenance is generally limited to cutting out downed trees from trails. Elimination of this maintenance will not benefit heritage resources in these areas. Multi-trailing from public use of the trails will be more likely. Multi-trailing has the potential to affect the physical remains and integrity of heritage resources.

Although the abandonment of trails in the CLO AU by the MPS will eliminate ongoing direct effects to heritage resources, simply removing stock from trails will not result in improved resource conditions everywhere. Trails that are not stable may stabilize over time, while some may not. Trails that do not stabilize over time have the potential to affect the physical remains and integrity of heritage resources.

The indirect effects of Alternative 1 will not benefit heritage resources. Although the pack station will not be operating, trails will still be used by the public. Trail maintenance will not be performed. Trails that do not stabilize over time will continue to impact heritage resources. These indirect effects have the potential to contribute to potentially adverse/adverse effects on some heritage resource sites in the CLO AU, which will affect the physical remains and integrity of these heritage resources.

Cumulative Effects
Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct Effects
Until a NRHP historic evaluation is complete, the MPS headquarters will be treated as a heritage resource site with a potential for impacts from station operations. Any maintenance activities that might impair historic integrity will be addressed in an HPMP. Monitoring will be required to verify compliance.

The MPS headquarters is having a potentially adverse/adverse effect to an underlying heritage resource site. Under these alternatives, continued operation of the headquarters is approved with the stipulation/clarifier that an HPMP is implemented. This HPMP will provide protection measures to mitigate the effects of the pack station operations on heritage resource sites. Monitoring is required to verify compliance.

Trail 24E01 (Isberg Trail) bisects one heritage resource site which appears to be having minimal effects from pack stock use, therefore the effects are considered ambiguous. Under these alternatives, continued use of this trail is approved with the stipulation/clarifier that periodic impact monitoring will be used to determine whether there are any ongoing effects to heritage resources.

Trail 26E01 (Mammoth Trail): the section of trail from Clover Meadow to Soldier Meadow crosses through several heritage resource sites. Although this section of Mammoth Trail receives high to moderate use, the sites and trail appear in stable condition, therefore the effects are considered ambiguous. Under these alternatives, continued use of this trail is approved with the stipulation/clarifier that periodic impact monitoring will be used to determine whether there are any ongoing effects to heritage resources.

Trails 26E38 and 26E39 runs through one heritage resource site. The use appears to be low on both trails, therefore the effects are considered ambiguous. Under these alternatives, continued use of these trails is approved with the stipulation/clarifier that periodic impact monitoring will be used to determine whether there are any ongoing effects to heritage resources.

Trail 25E06 (Jackass Meadow Stockdrive) crosses through one heritage resource site, but the use of the trail is low, therefore the effects are considered ambiguous. Under these alternatives, continued use of this trail is approved with the stipulation/clarifier that periodic impact monitoring will be used to determine whether there are any ongoing effects to heritage resources.

South Fork Trail 25E33 runs through two heritage resource sites. This section of trail was not reviewed in the field, but existing site records document the trail in or adjacent to the sites. The South Fork Trail is not a heavily used trail, and the condition of the sites and assessment of impacts from pack stock use are considered ambiguous. Under these alternatives, continued use of this trail is approved with the stipulation/clarifier that periodic impact monitoring will be used to determine whether there are any ongoing effects to heritage resources.

Use trail CLO01 runs northeast from the pack station headquarters to connect to Road 4S81. This trail bisects a heritage resource site. Stock use of this trail has resulted in potentially adverse/adverse effects to this heritage resource. Stock routes out of the pack station to access the day use trails or Wilderness system trails will stay on roads within the vicinity of the MPS. Monitoring is required to verify compliance.
Use trail CLO02 (Miller Meadow Stockdrive) runs through one heritage resource site, but the use of the trail is low, therefore the effects are considered ambiguous. Under these alternatives, continued use of this trail is approved with the stipulation/clarifier that periodic impact monitoring will be used to determine whether there are any ongoing effects to heritage resources.

Use trail CLO04 has been created as a short cut between two segments of Trail 24E26 which accesses the Fernandez Trailhead. This use trail runs through the southern part of a heritage resource site. Stock use of this trail has resulted in potentially adverse/adverse effects to this heritage resource. Under these alternatives, use trail CLO04 is prohibited. MPS will stay on system trails or roads through this area. Monitoring is required to verify compliance.

Use trail CLO08 (Miller Meadow Stockdrive, west end) runs through one heritage resource site, but the use of the trail is low, therefore the effects are considered ambiguous. Under these alternatives, continued use of this trail is approved with the stipulation/clarifier that periodic impact monitoring will be used to determine whether there are any ongoing effects to heritage resources.

There are no sites in Soldier Meadow, and therefore no direct effects from grazing on heritage resources.

Through the application of management measures under Alternatives 2 and 3, all potentially adverse/adverse effects from commercial pack station operations will be eliminated through avoidance, or mitigated through the implementation of an HPMP. Ambiguous effects will be monitored to determine ongoing impacts; if effects are determined then actions will be taken to eliminate or mitigate these impacts.

The direct effects of Alternatives 2 and 3 will benefit the heritage resources in the CLO AU. There are no heritage resource sites that will continue to have diminished impacts to the characteristics that qualify them for inclusion in the NRHP.

Indirect Effects

The indirect effects to heritage resources of Alternatives 2 and 3 would be from the existence of some use trails developed by commercial pack stations. Use trails provide access to remote areas by the general public. This access provides an opportunity for potential impacts to heritage resources from disturbance to surface and subsurface deposits from looting and vandalism. These activities have the potential to affect the physical remains and integrity of heritage resources.

The indirect effects of Alternatives 2 and 3 will have minor effects to the heritage resources in the CLO AU. There will be some impacts from public access through trails; however, this extra use by the public is not expected to have more than a minimal impact on heritage resources. These impacts may not reach the level of potentially adverse/adverse effects, and heritage resource sites would still retain the characteristics that qualify these resources for inclusion in the NRHP.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

EDISON (EDI)

Affected Environment

The EDI AU encompasses 4,888 acres with an elevational range of 7,000 to 8,300 feet above sea level. This AU is in the proximity of the important American Indian travel and trade corridor known as the Mono Trail.

There are no grazing areas or designated stock camps within this AU. Pack station facilities located within the EDI AU are the High Sierra Main Pack Station-Base Camp and the D&F Edison-Spike Station. The HSPS services and uses within the EDI AU include 1 and 2 hour rides, full and half day rides that travel into adjacent wilderness areas. HSPS and D&FPS full service overnight trips and spot and dunnage trips begin within the EDI AU with destinations in the Dinkey Lakes, Ansel Adams and John Muir Wildernesses. They use a combination of use trails, system trails, and system roads including the Onion Springs OHV Route. See Appendix B for a detailed list of facilities.

Until 1954, the Vermillion Valley existed within this AU as a broad flat valley with picturesque stands of Jeffrey pine. Steep alpine peaks and slopes surround the valley on all sides. Vermillion Valley, as it was known because of its bright red bluffs, was bisected by Mono Creek and was a favored location for American Indian summer encampments. It has been suggested that the rain shadow effect from Kaiser Ridge may have created a microclimate within the Vermillion Valley favorable for year round occupation (Snyder 2001:20). American Indian people were found occupying Vermillion Valley in 1864 and harvesting the Pandora moth larvae for food. Archaeological and ethnographic descriptions also indicate that travel and trade were major themes of American Indian use of the valley.

The modern landscape within this AU is largely the result of the development and construction of the Southern California Edison (SCE) dam across Mono Creek in the historic area known as the Vermillion Valley. The dam was built at the lower end of the valley where several terminal moraines left behind by the glaciers created a narrowing of the valley and room behind it for an expansive high elevation reservoir.

During construction, project engineers noticed many prehistoric American Indian archaeological remains and called in an archaeologist to examine their finds. Dr. William Wallace, archaeologist, was able to document several archaeological sites in the area of construction. Collections of surface artifacts from Vermilion Valley were collected by other archaeologists in the 1950s and deposited at the Phoebe Hearst Museum of Anthropology at UC Berkeley. Photographic documentation of private collections of artifacts purported to be from Vermilion Valley are also archived at the UC Berkeley museum. Scientific evidence from an archaeological site in the AU proves American Indian use of the valley for at least 3,000 years.

The Vermillion Valley Dam and Reservoir were completed in mid-October 1954 and was renamed Lake Thomas A. Edison. The reservoir surface now covers 1,838 acres of the AU. The creation of the reservoir substantially changed the view of the valley and impacted many now submerged heritage resources. Trails that traversed the bottom of Vermillion Valley along Mono Creek were moved to higher ground north and south of the reservoir high water mark. The Kaiser Pass Road was extended from the Mono Creek diversion dam further upstream into the Vermillion Valley along the old Mono Trail Route.

During dam construction, campgrounds and other recreational facilities were also under construction for the influx of tourists expected once the dam and reservoir were complete. Trees were cleared to make way for both reservoir and recreational developments. Heavy equipment scoured the bottom of the reservoir for borrow material to build the dam. In addition to the actual construction sites, work camps for laborers and administrative support personnel were established in the valley. All of this alteration of the landscape impacted and destroyed many heritage resources in this AU.

Commercial pack stock use of the area predated recreational use in that SCE owned and maintained pack stock strings in the 1930s that were used extensively to explore the High Sierra backcountry for new reservoir locations. Pack strings were also used to transport hydrographers to water measurement locations in the back country. SCE stock strings frequently traveled through the Vermillion Valley from the 1910s to the late 1940s.

Pack stock use on the old Mono Trail is documented from earliest historic times by miners, explorers, cattle and sheep herders, hydrographers, and American Indian people before the predominant packing use became recreational in the late 1950s. In the late 1930s, SCE began to sell their equipment and animals to commercial pack stock operators, who were by then mainly involved in transport of recreationists.

Between 1948 and 1969, the HSPS headquarters were located at Mono Hot Springs and a spike station was located at Vermillion Valley/Lake Thomas A. Edison. D&F, owned by Floyd Fike, also maintained a second spike station in this AU.

In 1969, the HSPS headquarters moved to a wet meadow location at Lake Thomas A. Edison from Mono Hot Springs. The location was found to be too wet and too close to the meadow, and the station moved to its present location in 1971. The buildings at the HSPS were built in 1971 and are not fifty years old.

Although the pack station buildings are not yet fifty years old, historical records and research indicate that the HSPS evolved from a long and rich history of pack stock use on the SNF, and the buildings will be 50 years old during the life of the permit; therefore a historical evaluation will be completed. If the buildings are found to be eligible for enrollment on the NRHP, any maintenance activities that might impair historic integrity would be addressed in the HPMP.

Modern activities include hydroelectric power generation, ranching, and recreation pursuits such as backpacking, biking, OHV use, fishing, hunting, horseback riding, swimming, boating, kayaking, rafting, car and recreational vehicle camping, and painting. Hiking trails are found throughout the AU. Special use resorts are found within this AU which provides a variety of services and products to recreational users of the area. Recreation use is relatively high in this unit.

Trails, roads, headquarters and spike stations associated with this project were all intensively surveyed for heritage resources, either in the past or in 2004/2005 specifically for the Pack Station Permit Reissuance project. The HSPS headquarters were originally

inventoried in 1995, and were again inventoried in 2004. In fact, the entire AU was surveyed with intensive coverage (0-30 meter transects) in August 2004. Sites within the EDI AU APE were monitored again during 2005.

There are a total of nine heritage resource sites within the APE in the EDI AU. All site forms were updated in 2004. Four of these nine sites were previously evaluated for significance and were found to be eligible for the NRHP. One of these significant sites is within the HSPS headquarters permit area.

Environmental Consequences

Alternative 1

Direct Effects

The High Sierra Main Pack Station-Base Camp and the D&F Edison-Spike Station will be evaluated before removal to determine if they are eligible to the NRHP. If any of the buildings or structures is found to be eligible, then removal of those buildings or structures would be an adverse effect. Mitigation of these effects and tribal consultation will be required. The facility removal process will require a different NEPA analysis and decision.

Abandonment of the use of trails by commercial pack stock in this AU will diminish ongoing impacts from incision, realignment, trampling, and displacement or damage of artifacts or features to the heritage resources in these operating areas. This will benefit some heritage resources by eliminating ongoing effects to heritage resource sites, thereby retaining the potential for these sites to be determined eligible to the NRHP.

The direct effects of Alternative 1 will not benefit some of the heritage resources in the EDI AU, and will minimally benefit other heritage resources. There will be some benefit to heritage resources from the elimination of ongoing effects from trail use by commercial pack stock; however, there will be potentially adverse/adverse effects to the High Sierra Main Pack Station-Base Camp and the D&F Edison-Spike Station if they are determined to be eligible to the NRHP. These effects will diminish the characteristics that qualify these resources for inclusion in the NRHP.

Indirect Effects

It is expected that there will be an increase in the recreational use of some of the use trails in this AU when the commercial pack station operations are removed. This will increase the opportunity and potential for looting and vandalism of heritage resources. These activities will affect the integrity of some of the heritage resource sites along these use trails.

Some maintenance is performed by commercial pack stations on some of the trails in the EDI AU. This maintenance is generally limited to cutting out downed trees from trails. Elimination of this maintenance will not benefit heritage resources in these areas. Multi-trailing from public use of the trails will be more likely. Multi-trailing has the potential to affect the physical remains and integrity of heritage resources.

Although the abandonment of trails in the EDI AU by the commercial pack station operations will eliminate ongoing direct effects to heritage resources, simply removing stock from trails will not result in improved resource conditions everywhere. Trails that are not stable may stabilize over time, while some may not. Trails that do not stabilize over time have the potential to impact the physical remains of heritage resource sites and diminish integrity.

The indirect effects of Alternative 1 will not benefit heritage resources. Although the pack station will not be operating, trails will still be used by the public. Trail maintenance will not be performed. Trails that do not stabilize over time will continue to impact heritage resources. These indirect effects have the potential to contribute to potentially adverse/adverse effects on some heritage resource sites in the EDI AU, which will affect the physical remains and integrity of these heritage resources.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct Effects

Until a NRHP historic evaluation is complete, the HSPS Base Headquarters at Edison Lake will be treated as a heritage resource site with a potential for impacts from station operations. Any maintenance activities that might impair historic integrity will be addressed in an HPMP. Monitoring will be required to verify compliance.

Nine heritage resource sites are bisected by trails. Effects from stock use are considered ambiguous. One of these sites will be managed through CARIDAP assessment. Under these alternatives, continued use of these trails is approved with the stipulation/clarifier that periodic impact monitoring will be used to determine whether there are any ongoing effects to heritage resources.

Additionally, one of the sites discussed above with a trail through it also has the potential of being impacted by HSPS Headquarter maintenance and repair. Stipulations concerning the management and avoidance of future impacts to the site from station operations will be included in the HSPS HPMP.

Within this AU, there are nine heritage resource sites with heritage resource sites with ambiguous effects. Ambiguous effects will be monitored to determine ongoing impacts; if effects are determined then actions will be taken to eliminate or mitigate these impacts.

The direct effects of Alternatives 2 and 3 will benefit the heritage resources in the EDI AU. There are no heritage resource sites that will continue to have diminished impacts to the characteristics that qualify them for inclusion in the NRHP.

Indirect Effects
The indirect effects to heritage resources of Alternatives 2 and 3 would be from the existence of some use trails created by commercial pack stations. Use trails provide access to remote areas by the general public. This access provides an opportunity for potential impacts to heritage resources from disturbance to surface and subsurface deposits from looting and vandalism. These activities have the potential to impact physical site remains and integrity.

The indirect effects of Alternatives 2 and 3 will have a minor effect to the heritage resources in the EDI AU. There will be some impacts from public access through trails; however, this extra use by the public is not expected to have more than a minimal impact on heritage resources. These impacts may not reach the level of potentially adverse/adverse effects, and heritage resource sites would still retain the characteristics that qualify these resources for inclusion in the NRHP.

Cumulative Effects
Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

CHINQUAPIN (CHQ)

Affected Environment

The CHQ AU contains 2,328 acres at an elevational range of 6,600 to 8,900 feet above sea level and surrounded by wilderness as it is within a non-wilderness access corridor to Thomas A. Edison and Florence Lakes.

There are no pack station facilities, camps, or grazing areas in this AU.

HSPS is permitted to use system trails and roads within the AU but commercial pack stock use of this AU is light and consists mainly of use of the Kaiser Pass Road to loose herd livestock into Thomas A. Edison and Florence Lakes in the spring and again in the fall. The Mono Trail, an important historic American Indian travel and trade corridor parallels the Kaiser Pass road. The Kaiser Pass Road is also being proposed as a NRHP eligible component of the Big Creek Hydroelectric District.

The Kaiser Pass Road has been inventoried for heritage resources, and there are no known conflicts adjacent to the roadway.

There are 2.7 miles of system trails. Trail 27E14 starts at the Bolsillo Campground and goes to Corbett and Givens Lake in the John Muir Wilderness. The trail is generally used by day hikers from the campground and is not heavily used by commercial pack stock. There is one known heritage resource site within the CHQ AU APE located adjacent to Trail 27E14.

Environmental Consequences

Alternative 1

Direct Effects

There are no heritage resources in this AU that will be affected by this alternative; therefore there are no direct effects.

Indirect Effects

There are no heritage resources in this AU that will be affected by this alternative; therefore there are no indirect effects.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct Effects

Use of the Kaiser Pass Road for loose stock herding will have no effect on heritage resources. Monitoring of the one site along trail 27E14 indicates no commercial pack stock impact; therefore, there are no direct effects to heritage resources in the CHQ AU.

Indirect Effects

There are no heritage resources in this AU that will be affected by this alternative; therefore there are no indirect effects.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

FLORENCE (FLO)

Affected Environment

The FLO AU is an important wilderness access point for the pack stations who utilize the one mile of system trail within the AU.

There are no designated stock camps within this AU. HSPS uses the Jackass Meadow complex, partly in this AU and partly in the AA/JM, for grazing. The entire meadow complex was analyzed in the 2005 Pack Stock Management EIS. Pack station facilities located within the FLO AU are: HSPS Florence Spike Station, LVPS Headquarters, and the MTR Florence Lake Resort. Full service overnight trips, and spot and dunnage trips depart from the HSPS Florence Lake Spike Station. LVPS and MTR maintain their commercial pack stock herds on private land within the wilderness and only use the FLO AU facilities for entrance and exit at the beginning and end of the packing season. All three operators use a combination of use trails, system trails, and system roads. They are authorized to use the Ansel Adams Wilderness, John Muir and Dinkey Lakes Wildernesses. See Appendix B for a detailed list of facilities.

A well used historic American Indian travel route from Mono Meadow on the old Mono Trail, to the Piute Trail at Blayney Meadow, and through the FLO AU, is well documented by five historic references, all dating before 1916. Numerous heritage sites are found in the AU to testify to its significance in the travel and trade activities of prehistoric and historic American Indian peoples.

Historic travel through the AU changed dramatically during the summer of 1920. Construction began at Huntington Lake of the Kaiser Pass Road, which follows the old Mono Trail. Immediately behind the road crew was another crew building a 30,000 volt transmission line from Big Creek. In eight weeks, eleven and one-half miles of the Kaiser Road were cleared and built. During that same summer, government crews were building the road along the north shore of Huntington Lake to serve the burgeoning crowds of recreationists and summer cabin owners. Mess halls, recreation halls, bunkhouses, warehouses, cold storage plant, laundries, even a sawmill, hospital, timekeepers office, doctor's residence, and detention ward were built in the two hydroelectric work camps that sprang up along the newly completed roadside.

During the summer of 1922, the Kaiser Pass road was completed to the FLO AU, and a new construction camp built at the intake of the Florence Lake Tunnel. This new SCE work camp known as Camp 63 contained many of the same structures and facilities as those described above. Remnants of this use are abundantly documented in the catalog of heritage resource sites documented within the AU. The Florence Lake Dam began in 1925 with timber clearing from the lake basin. A sawmill was established in upper Jackass Meadow, which is now under the reservoir, and another work camp for the sawmill (Camp 65) was built; sixty Best tractors traveled up the Kaiser Road to the then tiny natural Florence Lake.

Later, as the reservoir filled, another work camp (Camp 64) was built on higher ground. All the trees and undergrowth were removed from the reservoir basin. Huge expanses of gravel and dirt for dam construction were scoured from the valley. The Florence Lake Dam was the biggest of its kind when it was built—3,200 feet long with fifty-eight arches. The dam attracted considerable attention from the engineers as well as the general public. Today, the Florence Lake Dam is considered to be eligible for enrollment on the NRHP and is a well documented heritage resource within the AU.
The history of pack stock use in the FLO AU is quite similar to that of the EDI AU discussed above. Historic and archaeological sensitivity of the FLO AU is considered to be high.

The Muir Trail Ranch operates the Florence Lake Resort but does not use the facility for stabling livestock. The Muir Trail Ranch does use the FLO AU trails for commercial pack stock but only for access twice a year to their private in holding at Blayney Meadow. They bring their livestock in from the FLO AU in the spring and then out again in the fall. Use by the Muir Trail Ranch is limited and light. This is the only non-wilderness AU that the Muir Trail Ranch uses for their operations on the SNF. There is no livestock use at the Florence Lake Resort. The Florence Lake Resort facility is less than 50 years old. However the buildings will be 50 years old during the life of the

permit and a historical evaluation will be completed. If the buildings are found to be eligible for enrollment on the NRHP, any maintenance activities that might impair historic integrity would be addressed in the HPMP.

The Lost Valley Pack Station maintains a base camp at Florence Lake which consists of an A-frame cabin, storage shed, water tanks, and corrals. The base camp was fully inventoried for heritage resources in 1995. The livestock for this pack station are brought into the base camp along the same trails as those used by the Muir Trail Ranch.

The HSPS maintains a spike station at Florence Lake which consists of an office with living quarters, shower house, loading dock, tack shed, and corrals. The spike station was fully inventoried for heritage resources in 1995. The HSPS Florence Lake Spike Station will be evaluated for historic significance. The main cabin at the spike station was originally a construction foreman residence for the SCE hydroelectric project and was moved to the site. The main cabin is over fifty years old while the remainder of the facility is much more recent.

There is only one mile of system trail within this AU which is generally very short segments that link a trailhead to the immediately adjacent wilderness. All three pack stock operators use the trails in the FLO AU. The trail segments tend to be on rocky sloping ground.

Archaeological studies related to pack stock permitting and grazing have been conducted in this AU for the past ten years, in addition to numerous recreation and lands projects. This prior inventory and data was used to develop these recommendations. Additionally, all known sites within this AU APE were monitored again during the summer of 2005 for the purposes of this NEPA analysis. The SNF has been monitoring and managing a Native American plant collection area in this AU for the past ten years. This site is within the AU APE. There are a total of seven heritage resource sites within the AU APE.

Environmental Consequences

Alternative 1

Direct Effects

The pack station facilities located in this AU will be evaluated before removal to determine if they are eligible to the NRHP. If any of the buildings or structures is found to be eligible, then removal of those buildings or structures would be an adverse effect. Mitigation of these effects and tribal consultation will be required. The facility removal process will require a different NEPA analysis and decision.

The direct effects of Alternative 1 will not benefit the heritage resources in the FLO AU. There will be potentially adverse/adverse effects to the pack station facilities if they are determined to be eligible to the NRHP. These effects will diminish the characteristics that qualify these resources for inclusion in the NRHP.

Indirect Effects
Under this alternative, there will be no indirect effects to heritage resources.

Cumulative Effects
Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct Effects
Until the NRHP historic evaluation is complete, the three permitted pack station facilities in the FLO AU will be treated as heritage resource sites with a potential for impacts from station operations. Any maintenance activities that might impair historic integrity will follow the guidelines of the Standard Protection Measures of the PA (Attachment 6), and will be addressed in an HPMP. Monitoring will be required to verify compliance.

HSPS uses the Jackass Meadow complex, partly in this AU and partly in the AA/JM, for grazing. The entire meadow complex was analyzed in the 2005 Pack Stock Management EIS. Two sites with ambiguous effects related to grazing will be monitored to determine if pack station operations and associated activities are having any effect. Livestock exclosure fences to protect an archaeological site and a Native American plant collection area will be maintained to ensure no effect to heritage resources.

The direct effects of Alternatives 2 and 3 will benefit the heritage resources in the FLO AU. There are no heritage resource sites that will continue to have diminished impacts to the characteristics that qualify them for inclusion in the NRHP.

Indirect Effects
There are no heritage resources in this AU that will be indirectly affected by this alternative.

Cumulative Effects
Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

KAISER (KAI)

Affected Environment

D&F is the sole operator within the 21,989 acre Kaiser Wilderness, which is located immediately north of Huntington Lake. Elevation ranges from 7,000’ to 10,200’, in a steep landscape traversed by historic American Indian travel routes connecting San Joaquin River tributary crossings with the trans-Sierran travel routes to the east. Historic American Indian travel routes within the Kaiser Wilderness also link to the Mono Trail corridor. Most of the major known archaeological sites lie just outside the wilderness boundary as this wilderness is mostly the steep scarp of the Kaiser Massif.

There is no commercial pack stock grazing, and one designated stock camp within this AU. D&F maintains no facilities within the KAI AU. They use a combination of use trails, andsystem trails to provide overnight and spot and dunnage service to the AU. In addition to the Kaiser Wilderness, they are authorized to use the Ansel Adams and John Muir Wildernesses. Up to 16 stock nights of incidental grazing use are proposed for Nellie Lakes Meadow.

Obsidian hydration studies on a sample of the 1,554 projectile points from a site near the Kaiser Wilderness indicate an occupation span of at least 3,000 years. Nearby, a slate stemmed point, likely dating from the Paleo-Indian period, was found in Kaiser Creek just to the north of the Kaiser Wilderness. Kaiser Creek is also a major travel corridor from the Mammoth Pool area with documented Euro-American and American Indian gold mining in the historic period. The historic American Indian travel routes and the stream corridors are considered highly sensitive for heritage resources.
Twenty of the twenty-nine miles of system trails in this wilderness have been intensively inventoried. Use trails KAI01 and KAI02, totaling one mile, have not been inventoried. The one designated stock camp in this wilderness, known as the Nellie Lake Island Camp, has been inventoried and no conflicts with heritage resources were found.
New survey coverage in 2003-2004 resulted in the identification and recordation of 1 additional heritage resource site for a total of 7 heritage resource sites within the KAI AU APE.

Environmental Consequences

Alternative 1

Direct Effects

Abandonment of the use of trails by commercial pack stock in this AU, will diminish ongoing impacts from incision, realignment, trampling, and displacement or damage of artifacts or features to the heritage resources in these operating areas. This will benefit some heritage resources by eliminating ongoing effects to the physical remains and integrity of heritage resource sites, thereby retaining the potential for these sites to be determined eligible to the NRHP.

The direct effects of Alternative 1 will benefit the heritage resources in the EDI AU. There will be some diminished impacts from the abandonment of the use of trails by the commercial pack stations to the characteristics that qualify heritage resources for inclusion in the NRHP.

Indirect Effects

Some maintenance is performed by commercial pack stations on some of the trails in the KAI AU. This maintenance is generally limited to cutting out downed trees from trails. Elimination of this maintenance will not benefit heritage resources in these areas. Multi-trailing from public use of the trails will be more likely. Multi-trailing has the potential to affect the physical remains and integrity of heritage resources.
Although the abandonment of trails in the KAI AU by the commercial pack station operations will eliminate ongoing direct effects to heritage resources, simply removing stock from trails will not result in improved resource conditions everywhere. Trails that

are not stable may stabilize over time, while some may not. Trails that do not stabilize over time have the potential to impact the physical remains and integrity of heritage resources.

The indirect effects of Alternative 1 will not benefit heritage resources. Although the pack station will not be operating, trails will still be used by the public. Trail maintenance will not be performed. Trails that do not stabilize over time will continue to impact heritage resources. These indirect effects have the potential to contribute to potentially adverse/adverse effects on some heritage resource sites in the KAI AU, which will affect the physical remains and integrity of these heritage resources.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct Effects

Two heritage resource sites are bisected by trails. Effects from stock use are considered ambiguous. Under these alternatives, continued use of these trails is approved with the stipulation/clarifier that these sites will be monitored to determine if pack station operations and associated activities are having any effect.

The direct effects of Alternatives 2 and 3 will benefit the heritage resources in the KAI AU. There are no heritage resource sites that will continue to have diminished impacts to the characteristics that qualify them for inclusion in the NRHP.

Indirect Effects

The indirect effects to heritage resources of Alternatives 2 and 3 would be from the existence of some use trails created by commercial pack stations. Use trails provide access to remote areas by the general public. This access provides an opportunity for potential impacts to heritage resources from disturbance to surface and subsurface deposits from looting and vandalism. These activities have the potential to impact the physical remains and integrity of heritage resources.

The indirect effects of Alternatives 2 and 3 will have minor effects to heritage resources in the KAI AU. There will be some impacts from public access through trails; however, this extra use by the public is not expected to have more than a minimal impact on heritage resources. These impacts may not reach the level of potentially adverse/adverse effects, and heritage resource sites would still retain the characteristics that qualify these resources for inclusion in the NRHP.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

EAST HUNTINGTON (HNE)

Affected Environment

The HNE AU consists of 9,154 acres within the highly developed Huntington Lake Recreational Area in an elevational range from 7,000' to 10,200' above sea level. The northern AU boundary abuts the Kaiser Wilderness. Within the AU are nine miles of system trails and six miles of use trails.

There is no commercial pack stock grazing or designated stock camps within the AU. The only pack station facilities located within the HNE AU are the D&F Main Pack Station-Base Camp and the D&F Badger-Spike Station. The D&F services and uses within the HNE AU include 1 and 2 hour rides, full and half day rides. Full service overnight trips, and spot and dunnage trips depart from the HNE AU facilities into the adjacent Kaiser and Dinkey Lakes Wildernesses. They use a combination of use trails, system trails, and system roads. They are authorized to use the Kaiser and Dinkey Lakes Wildernesses as well as the Ansel Adams and John Muir Wildernesses. See Appendix B for a detailed list of facilities.

Between 1910 and 1913, SCE built three dams that created the modern Huntington Lake Reservoir. The construction of the dams drastically changed the environment and created a recreational mecca that has attracted of recreationists for almost 100 years. During the early 1910s through the late 1940s SCE maintained stock strings at Huntington Lake used for back country hydroelectric exploration and data collection work. After the completion of the reservoir some of the pack animals were used at the SCE-owned Huntington Lake Lodge for public recreation trips around the lake and into the surrounding back country. There were a series of SCE pack stations around the lake. One of those old SCE pack stations is today preserved as a group of three buildings within a recreational residence tract lot at Huntington Lake. In the late 1930s, SCE sold all of their packing equipment and stock to Vaud Cunningham, who owns and operates what is now D&F Pack Station.

In the 1920s there was sufficient business to support two pack stations at Huntington Lake, one owned by Vaud Cunningham at what is now the headquarters of D&F and the other owned by Glen Burns. Vaud Cunningham bought out the SCE pack string. Later Floyd Fike, the next owner of D&F, bought out the entire Burns operation. Both the Burns and Cunningham 1920s era pack stations were using buildings and material from the old SCE 1910-1913 construction camps at Huntington Lake. Buildings that are now located at the D&F Spike Station at Badger Flat date from the original period of SCE construction at the lake. The buildings were moved to the Glen Burns pack station, and when he sold to D&F, they were moved again to their present location at Badger Flat. The Badger Flat Spike Station buildings may be eligible for the NRHP as they have been on that site for over 50 years, despite being moved twice. There is a very long and rich packing history at Huntington Lake. Events at Huntington Lake were critical to the later development of the HSPS at Lake Thomas A. Edison.

Before the Huntington Lake Dams were constructed, the valley that was to be flooded was a major hub for historic American Indian travel corridors coming into the valley. The old Mono Trail most likely extended from Badger Flat into the Huntington Lake Basin. Trails to the north that linked North Fork Mono communities via trails from the Mammoth Pool areas and trans-Sierran routes via the South Fork of the San Joaquin River all came into the Huntington Lake basin via Potter Pass and Home Camp and Line Creeks.

Trails south of Huntington Lake connected the basin to the Jose Basin, Chawanakee Flat and Kinsman Flat that accessed North Fork Mono communities to the west. There is a rich ethnographic history for this area.

D&F is the sole operator within the HNE AU. During the field season of 2004, a total of 120 acres of the APE within the HNE AU was surveyed by a 1-2 person crew of professional archeologists. This survey represents new survey coverage, updated survey coverage, or resurvey of site specific use areas within the APE, as well as monitoring inspections of previously recorded sites. All new survey used intensive coverage (0-30 meter transects), and was documented with daily survey logs. A non-system stock drive between D&F headquarters on Deer Creek and the Badger Flat Spike Station could not be located. The vicinity of the stock drive route was previously intensively surveyed. Some low priority areas with no documented stock use remain unsurveyed.

New survey coverage resulted in the identification and recordation of two additional heritage resource sites. In addition to the two new sites recorded, six known sites within the APE were revisited. Site records were updated where necessary. Site assessments for pack stock use were documented on a Trails Monitoring Form created specifically for documenting pack stock effects. There are a total of 11 heritage resource sites within the APE.

Environmental Consequences

Alternative 1

Direct Effects

The D&F Main Pack Station-Base Camp and the D&F Badger-Spike Station will be evaluated before removal to determine if they are eligible to the NRHP. If any of the buildings or structures is found to be eligible, then removal of those buildings or structures would be an adverse effect. Mitigation of these effects and tribal consultation will be required. The facility removal process will require a different NEPA analysis and decision.

Abandonment of the commercial pack station use of trails will diminish ongoing impacts from incision, realignment, trampling, and displacement or damage of artifacts or features to the heritage resources in these operating areas. This will benefit some heritage resources by eliminating ongoing effects to the physical remains and integrity of heritage resource sites, thereby retaining the potential for these sites to be determined eligible to the NRHP.

The direct effects of Alternative 1 will not benefit some of the heritage resources in the HNE AU, and will minimally benefit other heritage resources. There will be some benefit from the elimination of ongoing effects from trail use by commercial pack stock; however, there will be potentially adverse/adverse effects to the pack station facilities. These effects will diminish the characteristics that qualify these resources for inclusion in the NRHP.

Indirect Effects

The commercial pack station performs some maintenance on some of the trails in the HNE AU. This maintenance is generally limited to cutting out downed trees from trails. Elimination of this maintenance will not benefit heritage resources in these areas. Multi-trailing from public use of the trails will be more likely. Multi-trailing has the potential to affect the physical remains and integrity of heritage resources.

Although the abandonment of trails in the HNE AU by commercial pack stations will eliminate ongoing direct effects to heritage resources, simply removing stock from trails will not result in improved resource conditions everywhere. Trails that are not stable may stabilize over time, while some may not. Trails that do not stabilize over time have the potential to impact the physical remains and integrity of heritage resource sites.

The indirect effects of Alternative 1 will not benefit heritage resources. Although the pack station will not be operating, trails will still be used by the public. Trail maintenance will not be performed. Trails that do not stabilize over time will continue to impact heritage resources. These indirect effects have the potential to contribute to potentially adverse/adverse effects on some heritage resource sites in the HNE AU, which will affect the physical remains and integrity of these heritage resources.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct Effects

Until the NRHP historic evaluation is complete, the D&F Headquarters at Deer Creek and the D&F Spike Station at Badger Flat will be treated as heritage resource sites with a potential for impacts from station operations. Any maintenance activities that might impair historic integrity will follow the guidelines of the Standard Protection Measures of the PA (Attachment 6), and will be addressed in an HPMP. Monitoring will be required to verify compliance.

There are eight heritage resources that are bisected with trails. Effects from stock use are considered ambiguous. Under these alternatives, continued use of these trails is approved with the stipulation/clarifier that these sites will be monitored to determine if pack station operations and associated activities are having any effect.

The stock driveway route from D&F at Huntington Lake to the Badger Flat Spike Camp is not a clearly defined route. Two heritage resource sites are located near the route identified by Brad Myers (D&F owner) on August 5, 2003. Due to the proximity of these two sites, stock will be limited to use trail HNE03.

Within this AU, there are eight heritage resource sites with ambiguous effects. These heritage resource sites will be monitored to determine if pack station operations and associated activities are having any effect.

The direct effects of Alternatives 2 and 3 will benefit the heritage resources in the HNE AU. There are no heritage resource sites that will continue to have diminished impacts to the characteristics that qualify them for inclusion in the NRHP.

Indirect Effects

The indirect effects to heritage resources of Alternatives 2 and 3 would be from the existence of some use trails created by commercial pack stations. Use trails provide access to remote areas by the general public. This access provides an opportunity for potential impacts to heritage resources from disturbance to surface and subsurface deposits from looting and vandalism. These activities have the potential to impact the physical remains and integrity of heritage resources.

The indirect effects of Alternatives 2 and 3 will have some impacts to heritage resources in the HNE AU; however, this extra use by the public is not expected to have more than a minimal impact on heritage resources. These impacts may not reach the level of potentially adverse/adverse effects, and heritage resource sites would still retain the characteristics that qualify these resources for inclusion in the NRHP.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

WEST HUNTINGTON (HNW)

Affected Environment

The HNW AU has 1,748 acres and ranges in elevation from 7,000 to 8,100 feet above sea level. The AU is located in the highly used Huntington Lake Recreation Area between Huntington Lake and the Kaiser Wilderness boundary. The AU contains 9 miles of system trails with no use trails.

There are no facilities, commercial pack stock grazing areas or designated stock camps within the HNW AU.

D&F is the sole commercial pack stock operator in the HNW AU. The APE for heritage resource concerns was defined as all 9 miles of system trails and system roads that D&F uses, or have requested use of, in their operations.

These trails and roads were surveyed for heritage resources, either in the past (and documented for other undertakings), or between 2003 and 2005 specifically for the Pack Station Permit Reissuance. With the combination of previous survey, and new survey coverage, only small portions of the APE in non-wilderness remain unsurveyed. There is one heritage resource site within the HNW AU APE.

Environmental Consequences

Alternative 1

Direct Effects

Abandonment of the use of trails by commercial pack stock in this AU, will diminish ongoing impacts from incision, realignment, trampling, and displacement or damage of artifacts or features to the heritage resources in these operating areas. This will benefit some heritage resources by eliminating ongoing effects to the physical remains and integrity of heritage resource sites, thereby retaining the potential for these sites to be determined eligible to the NRHP.

The direct effects of Alternative 1 will benefit the heritage resources in the HNW AU. There will be some diminished impacts from the abandonment of the use of trails by the commercial pack stations to the characteristics that qualify heritage resources for inclusion in the NRHP.

Indirect Effects

Some maintenance is performed by commercial pack stations on some of the trails in the HNW AU. This maintenance is generally limited to cutting out downed trees from trails. Elimination of this maintenance will not benefit heritage resources in these areas. Multi-trailing from public use of the trails will be more likely. Multi-trailing has the potential to affect the significance and integrity of heritage resources.

Although the abandonment of trails in the HNW AU by the commercial pack station operations will eliminate ongoing direct effects to heritage resources, simply removing stock from trails will not result in improved resource conditions everywhere. Trails that are not stable may stabilize over time, while some may not. Trails that do not stabilize over time have the potential to impact the physical remains and integrity of heritage resources.

The indirect effects of Alternative 1 will not benefit heritage resources. Although the pack station will not be operating, trails will still be used by the public. Trail maintenance will not be performed. Trails that do not stabilize over time will continue to impact heritage resources. These indirect effects have the potential to contribute to potentially adverse/adverse effects on some heritage resource sites in the HNW AU, which will affect the physical remains and integrity of these heritage resources.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct Effects

There is one heritage resource that is bisected with a trail. Effects from stock use are considered ambiguous. Under these alternatives, continued use of this trail is approved with the stipulation/clarifier that this sites will be monitored to determine if pack station operations and associated activities are having any effect.

The direct effects of Alternatives 2 and 3 will benefit the heritage resources in the HNW AU. There are no heritage resource sites that will continue to have diminished impacts to the characteristics that qualify them for inclusion in the NRHP.

Indirect Effects

The indirect effects to heritage resources of Alternatives 2 and 3 would be from the existence of some use trails created by commercial pack stations. Use trails provide access to remote areas by the general public. This access provides an opportunity for potential impacts to heritage resources from disturbance to surface and subsurface deposits from looting and vandalism. These activities have the potential to impact the physical remains and integrity of heritage resources.

The indirect effects of Alternatives 2 and 3 will have some impacts to heritage resources in the HNW AU; however, this extra use by the public is not expected to have more than a minimal impact on heritage resources. These impacts may not reach the level of potentially adverse/adverse effects, and heritage resource sites would still retain the characteristics that qualify these resources for inclusion in the NRHP.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

COYOTE (COO)

Affected Environment

The COO AU is used by four commercial pack stock operators; the HSPS, D&F, LVPS, and CPO.

There are no pack station facilities in this AU. Commercial pack stock grazing is prohibited until assessed. Multiple operators are assigned two designated stock camps for use in this AU. The two designated stock camps are Perkins Camp and Rock Meadow. There are 11.5 miles of system trails in the unit and there are two designated OHV routes immediately adjacent to the unit boundaries. The Dinkey Lakes Trail Management Plan applies to this AU.

Eight of the 11.5 miles of system trails have been inventoried. Five archaeological sites have been identified within the APE in this AU. The two trail segments that remain un-inventoried are the ½ mile 26E54.3 trail cut-off between trail 24E03 and the Dusy Ershim OHV route to the east. The cut-off is providing hiker access to Ershim Lake in the John

Muir Wilderness. The second un-inventoried trail segment is the portion of trail 26E43 south of its junction with 26E42 and accesses Coyote and First Dinkey Lakes. No known sites are located along either route. Trail 24E03 just east of Rock Meadow and Rock Meadow itself are considered to be archaeologically sensitive as they are associated with three identified historic Indian travel routes.

The only other place of major concern in this AU is Perkins Camp. Perkins Camp is identified as a designated stock camp and is assigned for use to three commercial pack stock operators. Perkins Camp will need additional survey work prior to its approval as a designated stock camp.

Environmental Consequences

Alternative 1

Direct Effects

Abandonment of the use of trails by commercial pack stock in this AU will diminish ongoing impacts from incision, realignment, trampling, and displacement or damage of artifacts or features to the heritage resources in these operating areas. This will benefit some heritage resources by eliminating ongoing effects to the physical remains and integrity of heritage resource sites, thereby retaining the potential for these sites to be determined eligible to the NRHP.

The direct effects of Alternative 1 will benefit the heritage resources in the COO AU. There will be some diminished impacts from the abandonment of the use of trails by the commercial pack stations to the characteristics that qualify heritage resources for inclusion in the NRHP.

Indirect Effects

Some maintenance is performed by commercial pack stations on some of the trails in the COO AU. This maintenance is generally limited to cutting out downed trees from trails. Elimination of this maintenance will not benefit heritage resources in these areas. Multi-trailing from public use of the trails will be more likely. Multi-trailing has the potential to affect the physical remains and integrity of heritage resources.

Although the abandonment of trails in the COO AU by the commercial pack station operations will eliminate ongoing direct effects to heritage resources, simply removing stock from trails will not result in improved resource conditions everywhere. Trails that are not stable may stabilize over time, while some may not. Trails that do not stabilize over time have the potential to impact the physical remains and integrity of heritage resource sites.

The indirect effects of Alternative 1 will not benefit heritage resources. Although the pack station will not be operating, trails will still be used by the public. Trail maintenance will not be performed. Trails that do not stabilize over time will continue to impact heritage resources. These indirect effects have the potential to contribute to potentially adverse/adverse effects on some heritage resource sites in the COO AU, which will affect the physical remains and integrity of these heritage resources.

Cumulative Effects
Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct Effects
There is one heritage resources site that is bisected by a trail. Effects from commercial stock use are considered ambiguous. Under these alternatives, continued use of this trail is approved with the stipulation/clarifier that this site will be monitored to determine if pack station operations and associated activities are having any effect.

Continued use of the AU trails as prescribed in the Dinkey Lakes Trail Management Plan will not cause additional impact to heritage resources.

Under these alternatives, the designated pack stock camp at Perkins Camp will require additional heritage assessment prior to approval. A designated stock camp at Rock Meadow is in close proximity to a sensitive meadow and will require periodic impact monitoring of several heritage sites. Native American sensitivity of the area is also considered to be high. Additional tribal consultation will be necessary as monitoring data becomes available.

Within this AU, there is one heritage resource site with ambiguous effects. This heritage resource site will be monitored to determine if pack station operations and associated activities are having any effect.
The direct effects of Alternatives 2 and 3 will benefit the heritage resources in the COO AU. There are no heritage resource sites that will continue to have diminished impacts to the characteristics that qualify them for inclusion in the NRHP.

Indirect Effects
The indirect effects to heritage resources of Alternatives 2 and 3 would be from the existence of some use trails created by commercial pack stations. Use trails provide access to remote areas by the general public. This access provides an opportunity for potential impacts to heritage resources from disturbance to surface and subsurface deposits from looting and vandalism. These activities have the potential to impact the physical remains and integrity of heritage resources.

The indirect effects of Alternatives 2 and 3 will have some impacts to heritage resources in the COO AU; however, this extra use by the public is not expected to have more than a minimal impact on heritage resources. These impacts may not reach the level of potentially adverse/adverse effects, and heritage resource sites would still retain the characteristics that qualify these resources for inclusion in the NRHP.

Cumulative Effects
Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

DINKEY LAKES (DIL)

Affected Environment

The DIL AU is used by three commercial pack stock operators; the HSPS, D&F, and CPO. There are 8.1 miles of system trails in the AU that are used by the three commercial pack stock operators for full service overnight and spot and dunnage trips. There are no commercial pack stock facilities, grazing areas or designated stock camps in the AU. Incidental dispersed grazing will not be allowed in Little Lake, Miner Camp, South Lake, SE 1st Dinkey Lakes Meadows. The Dinkey Lakes Trail Management Plan applies to this AU.

Seven of the 8.1 miles of system trails have been inventoried. The three trail segments that remain un-inventoried are the ½ mile 26E45 trail from Swede to Rainbow Lake, a portion of 27E07 to Second Dinkey Lake and Island Lake, and 26E06 from first Dinkey Lake north to the old Kings River/Pineridge Ranger District boundary. No known sites are located along any of the un-inventoried route segments.

Seven of the 8.1 miles of system trails in the unit have been inventoried and there is one heritage resource site within the AU APE.

Environmental Consequences

Alternative 1

Direct and Indirect Effects

Under this alternative, there are no heritage resources in this AU that will be directly or indirectly affected.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct and Indirect Effects

One heritage site was recently monitored and found to be in good condition with no impacts from trail use or commercial livestock, consequently there are no direct effects to heritage resources.

Under these alternatives, there are no heritage resources that will be directly or indirectly affected.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

HELMS (HEL)

Affected Environment

There are no pack station facilities, grazing areas or designated stock camps within the HEL AU. The system trails are used by three commercial pack stock operators (D&F, HSPS, and CPO) for full service overnight and spot and dunnage trips into the Dinkey Lakes Wilderness. The Dinkey Lakes Trail Management Plan applies to this AU.

Eight and one-half of the 10 miles of system trails have been inventoried. A portion of system trail 27E56 north of Helms Meadow remains un-inventoried. There are two archaeological sites bisected by system trails. No known sites are located along the un-inventoried segment.

Environmental Consequences

Alternative 1

Direct Effects

Abandonment of the use of trails by commercial pack stock in this AU will diminish ongoing impacts from incision, realignment, trampling, and displacement or damage of artifacts or features to the heritage resources in these operating areas. This will benefit some heritage resources by eliminating ongoing effects to the physical remains heritage and integrity of heritage resources, thereby retaining the potential for these sites to be determined eligible to the NRHP.

The direct effects of Alternative 1 will benefit the heritage resources in the HEL AU. There will be some diminished impacts from the abandonment of the use of trails by the commercial pack stations to the characteristics that qualify heritage resources for inclusion in the NRHP.

Indirect Effects

Some maintenance is performed by commercial pack stations on some of the trails in the NEL AU. This maintenance is generally limited to cutting out downed trees from trails. Elimination of this maintenance will not benefit heritage resources in these areas. Multi-trailing from public use of the trails will be more likely. Multi-trailing has the potential to affect the physical remains and integrity of heritage resources.

Although the abandonment of trails in the NEL AU by the commercial pack station operations will eliminate ongoing direct effects to heritage resources, simply removing stock from trails will not result in improved resource conditions everywhere. Trails that are not stable may stabilize over time, while some may not. Trails that do not stabilize over time have the potential to impact the physical remains and integrity of heritage resources.

The indirect effects of Alternative 1 will not benefit heritage resources. Although the pack station will not be operating, trails will still be used by the public. Trail maintenance will not be performed. Trails that do not stabilize over time will continue to impact heritage resources. These indirect effects have the potential to contribute to

potentially adverse/adverse effects on some heritage resource sites in the NEL AU, which will affect the physical remains and integrity of these heritage resources.

Cumulative Effects
Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct Effects
There are two heritage resource sites that are bisected by trails. Effects from stock use are considered ambiguous. Under these alternatives, continued use of these trails is approved with the stipulation/clarifier that these sites will be monitored to determine if pack station operations and associated activities are having any effect.

Continued use of the AU trails as prescribed in the Dinkey Lakes Trail Management Plan will not cause additional impact to heritage resources.

Within this AU, there are two heritage resource sites with ambiguous effects. These heritage resource sites will be monitored to determine if pack station operations and associated activities are having any effect.

The direct effects of Alternatives 2 and 3 will benefit the heritage resources in the HEL AU. There are no heritage resource sites that will continue to have diminished impacts to the characteristics that qualify them for inclusion in the NRHP.

Indirect Effects
The indirect effects to heritage resources of Alternatives 2 and 3 would be from the existence of some use trails created by commercial pack stations. Use trails provide access to remote areas by the general public. This access provides an opportunity for potential impacts to heritage resources from disturbance to surface and subsurface deposits from looting and vandalism. These activities have the potential to impact the physical remains and integrity of heritage resources.

The indirect effects of Alternatives 2 and 3 will have some impacts to heritage resources in the HEL AU; however, this extra use by the public is not expected to have more than a minimal impact on heritage resources. These impacts may not reach the level of potentially adverse/adverse effects, and heritage resource sites would still retain the characteristics that qualify these resources for inclusion in the NRHP.

Cumulative Effects
Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

NELSON (NEL)

Affected Environment

The NEL AU is used by three commercial pack stock operators; the HSPS, D&F, and CPO.

There are no commercial stock operator facilities or grazing areas in this AU; three operators are assigned one designated stock camp for use in this AU. The designated stock camp is at Cliff Lake. There are ten miles of system trails in the within the AU. The Dinkey Lakes Trail Management Plan applies to this AU.

Of the ten miles of system trails 8 ½ miles have been inventoried. The two trail segments that remain un-inventoried are the ½ mile of 27E09 that accesses Helms Meadow. The second un-inventoried trail segment is the portion of trail 26E09 that accesses Rock and Little Lakes from Cliff Lake. No known sites are located along either route.

Cliff Lake, which has been designated as a pack stock camp for the commercial stock users has not been inventoried. An archaeologist will need to examine the area where the stock camp is going to be located and ensure no conflicts with archaeological resources. There are no known heritage resources in this AU APE.

Environmental Consequences

Alternative 1

Direct and Indirect Effects

There are no heritage resource sites within this AU; therefore there are no direct or indirect effects.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct and Indirect Effects

There are no heritage resource sites within this AU; therefore there are no direct or indirect effects.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

DINKEY FRONT COUNTRY (DFC)

Affected Environment

The DFC AU is only used by one commercial pack stock operator: CPO.

There are no designated stock camps within the AU. Commercial pack stock grazing is being proposed for Mill and Glen Meadow. There is one facility in the AU, the CPO Dinkey Creek Station. The Dinkey Creek Station functions as a departure and arrival point for day rides (one hour, two hour, half day, and full day rides). One and two hour trips are along trails and roads in the vicinity of the station. Half day trips follow Dinkey Creek to the Strawberry Creek junction or Rock Creek Junction. Full day trips go to Dinkey Creek Crossing in the Muley Hole area. See Appendix B for a detailed list of facilities.

There are 2.1 miles of system trails in the AU. Additionally, during the analysis period several potential grazing locations were identified. These are the places that were examined for the presence of heritage resources for grazing; Glen Meadow (aka Family Camp Meadow), Strawberry Meadow, Mill Meadow, and the federally owned portion of Forked Meadow. All of these areas including the Dinkey Creek Station have been inventoried for heritage sites. All of the system trails in the unit have been inventoried as well as Mill and Glen Meadows

Environmental Consequences

Alternative 1

Direct Effects

The Dinkey Creek Station will be evaluated before removal to determine if is eligible to the NRHP. If any of the buildings or structures is found to be eligible, then removal of those buildings or structures would be an adverse effect. Mitigation of these effects and tribal consultation will be required. The facility removal process will require a different NEPA analysis and decision.

Abandonment of the commercial pack station use of trails will diminish ongoing impacts from incision, realignment, trampling, and displacement or damage of artifacts or features to the heritage resources in these operating areas. This will benefit some heritage resources by eliminating ongoing effects to heritage resource physical remains and integrity, thereby retaining the potential for these sites to be determined eligible to the NRHP.

The direct effects of Alternative 1 will not benefit some of the heritage resources in the DFC AU, and minimally benefit other heritage resources. There will be some benefit from the elimination of ongoing effects from trail use by pack stock; however, there will be potentially adverse/adverse effects to the pack station facilities. These effects will diminish the characteristics that qualify these resources for inclusion in the NRHP.

Indirect Effects

The commercial pack station performs some maintenance on some of the trails in the DFC AU. This maintenance is generally limited to cutting out downed trees from trails. Elimination of this maintenance will not benefit heritage resources in these areas. Multi-trailing from public use of the trails will be more likely. Multi-trailing has the potential to affect the physical remains and integrity of heritage resources.

Although the abandonment of trails in the DFC AU by commercial pack stations will eliminate ongoing direct effects to heritage resources, simply removing stock from trails will not result in improved resource conditions everywhere. Trails that are not stable may stabilize over time, while some may not. Trails that do not stabilize over time have the potential to impact the physical remains and integrity of heritage resources.

The indirect effects of Alternative 1 will not benefit heritage resources. Although the pack station will not be operating, trails will still be used by the public. Trail maintenance will not be performed. Trails that do not stabilize over time will continue to impact heritage resources. These indirect effects have the potential to contribute to potentially adverse/adverse effects on some heritage resource sites in the DFC AU, which will affect the physical remains and integrity of these heritage resources.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct Effects

Until the NRHP historic evaluation is complete, the CPO Dinkey Creek Station will be treated as a heritage resource site with a potential for impacts from station operations. Any maintenance activities that might impair historic integrity will follow the guidelines of the Standard Protection Measures of the PA (Attachment 6), and will be addressed in an HPMP. Monitoring will be required to verify compliance.

There two heritage resource sites that are bisected by trails. Effects from stock use are considered ambiguous. Under these alternatives, continued use of these trails is approved with the stipulation/clarifier that these sites will be monitored to determine if pack station operations and associated activities are having any effect.

Within this AU, there are two heritage resource sites with ambiguous effects. These sites will be monitored to determine if pack station operations and associated activities are having any effect.

The direct effects of Alternatives 2 and 3 will benefit the heritage resources in the DFC AU. There are no heritage resource sites that will continue to have diminished impacts to the characteristics that qualify them for inclusion in the NRHP.

Indirect Effects

The indirect effects to heritage resources of Alternatives 2 and 3 would be from the existence of some use trails created by commercial pack stations. Use trails provide access to remote areas by the general public. This access provides an opportunity for potential impacts to heritage resources from disturbance to surface and subsurface deposits from looting and vandalism. These activities have the potential to impact the physical remains and integrity of heritage resources.

The indirect effects of Alternatives 2 and 3 will have some impacts to heritage resources in the DFC AU; however, this extra use by the public is not expected to have more than a minimal impact on heritage resources. These impacts may not reach the level of potentially adverse/adverse effects, and heritage resource sites would still retain the characteristics that qualify these resources for inclusion in the NRHP.

Cumulative Effects
Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

TULE MEADOW (TUL)

Affected Environment

The TUL AU contains 11 acres and ranges in elevation from 7,000 to 7,060 feet above sea level.

No commercial pack stock grazing or designated stock camps are proposed for the TUL AU. The only commercial pack station facility within the TUL AU is the CPO Pole Corral Creek Headquarters, which serves as the contact point for clients. Pack animals are corralled here and at the Dinkey Creek Station in the DFC AU. Limited housing/camping is provided for clients and staff. Pole Corral Headquarters may be used to provide half day trips to the Cliff Camp area. See Appendix B for a detailed list of facilities.

The entire AU plus an additional 29 acres of land surrounding the pack station headquarters were previously surveyed, and those surveys identified two archaeological sites within the AU. Both sites were sparse flake scatters and found within the CPO APE near a parking area and corral. The sites were excavated from June 27, 1996 to July 10, 1996 according to the CARIDAP program, displayed no subsurface deposit and met all the criteria for management under the CARIDAP program. The sites were found to be not eligible for inclusion on the NRHP and are insignificant sites. There are three heritage resource sites in this AU APE.

Environmental Consequences

Alternative 1

Direct Effects
The CPO Pole Corral Creek Headquarters will be evaluated before removal to determine if is eligible to the NRHP. If any of the buildings or structures is found to be eligible, then removal of those buildings or structures would be an adverse effect. Mitigation of these effects and tribal consultation will be required. The facility removal process will require a different NEPA analysis and decision.

The direct effects of Alternative 1 will not benefit the heritage resources in the TUL AU. There will be some diminished impacts to the characteristics that qualify these resources for inclusion in the NRHP, however, there will be potentially adverse/adverse effects to

the pack station facilities. These effects will diminish the characteristics that qualify these resources for inclusion in the NRHP.

Indirect Effects
Under this alternative, there will be no indirect effects to heritage resources.

Cumulative Effects
Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct Effects
Until the NRHP historic evaluation is complete, the CPO Pole Corral Headquarters will be treated as a heritage resource site with a potential for impacts from station operations. Any maintenance activities that might impair historic integrity will follow the guidelines of the Standard Protection Measures of the PA (Attachment 6), and will be addressed in an HPMP. Monitoring will be required to verify compliance.

Two heritage sites within the TUL AU have been evaluated and found to be ineligible for NRHP enrollment.

The direct effects of Alternatives 2 and 3 will benefit the heritage resources in the TUL AU. There are no heritage resource sites that will continue to have diminished impacts to the characteristics that qualify them for inclusion in the NRHP.

Indirect Effects
Under these alternatives, there will be no indirect effects to heritage resources.

Cumulative Effects
Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

WISHON (WIS)

Affected Environment

The WIS AU has only one commercial pack stock user, CPO.

No designated stock camps or commercial grazing areas are proposed. CPO maintains the Clyde Pack Outfitters Spike Station and it is the only facility within the AU. See Appendix B for a detailed list of facilities.

The spike station permit area was completely inventoried for heritage resources and none were found.

Environmental Consequences

Alternative 1

Direct and Indirect Effects

There are no heritage resource sites within this AU; therefore there are no direct or indirect effects.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

Alternatives 2 and 3

Direct and Indirect Effects

There are no heritage resource sites within this AU; therefore there are no direct or indirect effects.

Cumulative Effects

Cumulative effects have not been analyzed on an AU by AU level. See Environmental Consequences Overview for a discussion of cumulative effects common to all AUs.

ANSEL ADAMS/JOHN MUIR (AA/JM)

Affected Environment

A comprehensive discussion of heritage resources and American Indian concerns for the Ansel Adam/John Muir AU can be found in the 2005 Pack Stock Management EIS on page III-83. This FEIS incorporates that information by reference.

Environmental Consequences

A comprehensive discussion of the environmental consequences to heritage resources and American Indian concerns for the Ansel Adam/John Muir AU can be found in the 2005 Pack Stock Management EIS on pages IV-224. This FEIS incorporates that information by reference.

3.1.5 Operational and Socioeconomic Analysis

Operations

3.1.5.1 Background

This analysis is intended to determine, at the individual business scale, the operational and probable revenue effects on commercial pack stock businesses and how these effects would vary between the three alternatives described in this Commercial Pack Stock Permit Reissuance for the Sierra National Forest Environmental Impact Statement.

The Pack Stock businesses assessed in this section are reviewed in alphabetical order. They are:

1. Clyde Pack Outfitters (CPO)
2. D&F Pack Station (D&F)
3. High Sierra Pack Station (HSPS)
4. Lost Valley Pack Station (LVPS)
5. Muir Trail Ranch (MTR)
6. Minarets Pack Station (MPS)
7. Yosemite Trails Pack Station (YTPS)

On the Sierra National Forest in 2006, there were a total of 734 recreational special use permits (Special Uses Data Base - SUDS). Of the total, six are pack station resort permits and one is a commercial pack stock outfitter/guide permit (Muir Trail Ranch).

Table 3.22 Total Number of Recreation Special Use Permits 2006

Permit/Activity Type	Number
Boat Dock	8
Club or Camp	26
Cabin	600
Resort/Marina/Pack Station	38
Private Campground	2
Recreation Event	28
Outfitter/Guide	54
Ski Area	1
Total	734

Pack Station Industry History

Recreational packing in the Central Sierra began in Yosemite Valley in the late 1800s. In the next decades, families and other groups from communities on both sides of the crest explored and camped in the high country with horses and mules (Farquhar, 1925, 1965).

The founding of the Sierra Club in 1892 focused widespread public interest on visiting and preserving the Sierra Nevada environs. Soon the Sierra Club began conducting trips into the Sierra Nevada. For the next 50 years the large Sierra Club High Sierra Trips kept packers busy. They were elaborate affairs, sometimes lasting up to eight weeks involving an average of 150 people, around 50 packers and long pack trains of up to 250 mules carrying 100 pound stoves and full-time cook crews (Farquhar, 1965; Dilsaver and Tweed, 1990; Jackson, 2004)

When the SNF was established in 1906, regulations were instituted to control the degradation of public lands. These included the number of animals used, the allowed period of time for grazing, a requirement for grazing permits, a grazing fee, and the approval for structures such as out-buildings, tent sites, drift fences, and corrals. By 1920, a concessionaire's permit for packing operations was required. (Jackson 2004).

In the 1920s there were 36 large pack outfits operating in the southern Sierra Nevada; by 1935 pack outfits increased in the southern Sierra Nevada to 71 commercial businesses. The post WWII era pack stations numbered about 60 on both sides of the crest between Sonora and Walker Passes in 1947 (Livermore, 1947). There was intense competition and customers demanded better service. Increased oversight by the Agencies required more stringent business practices such as liability insurance, performance bonds, financial reports, schedules of personnel and stock, and accounting of types and areas of services provided. Increasing costs of doing business (feed, salaries, stock, equipment, supplies, maintenance, and insurance), costs of pack station maintenance, and accounting/bookkeeping costs resulted in higher expenses. Pack outfits either lost money or barely met expenses (Jackson, 2004).

Compliance with rules and regulations, however, was erratic and lax, primarily because enforcement was difficult (Jackson, 2004). During the 1930s and 1940s most packers did not apply for permits to operate inside the national parks. In the 1950s and 1960s, some packers accepted the inevitable restrictions on both the national parks and national forests but complained that they were being put out of business because of them. Not accounting for fluctuations, the decline in the intensity of pack operations in the southern Sierra Nevada (from Yosemite National Park south) can be partly measured by the estimated number of stock owned, which ranged from 2764 head in 1935 to 1420 head in 1986, a 51% decrease. The number of pack outfits decreased to less than 50 in 1990. Major pack stations from the Kern Plateau to Silver Lake numbered 71 at a historical maximum and only 13 by 2004, an 82% reduction.

With the availability of lightweight back packing equipment and supplies in the 1960s and 1970s, hiking and backpacking significantly outpaced the use of pack stock by nearly eight to one (USDA Forest Service, 1979).

Federal regulations and the difficulties of packing itself required packer operations to work together in order to maintain a viable business. This included cooperation between pack outfits and the Park Service and Forest Service. Some packers, for example, combined their stock for large parties and contributed to trail maintenance activities. To

encourage cooperation the High Sierra Packer's Association, established in 1934 at the instigation of Ike Livermore, created guidelines for better business practices (Jackson, 2004).

3.1.5.2 Methodology

The analysis team included Forest Service permit administrators from both the Inyo and Sierra National Forests, recreation staff officer from the Sierra NF, and a Forest Service auditor. We analyzed all known records of commercial pack stock use and operations data. Use and operations data provided by the operators (tally sheets, personal communications, and other sources) were also considered. The team relied on the determinations made in the 2005 Pack Stock Management EIS for effects to operations and revenue for uses within the Ansel Adams and John Muir wildernesses.

Determination of Baseline Operations for Analysis Purposes

The affected environment descriptions of individual pack stations in this section, and therefore, the baseline point for comparison of effects between alternatives, was set as the period of the last valid term permit, prior to 2001.

The "No Action" alternative, which in this case is to not issue permits, is traditionally the baseline against which all alternatives are compared. For this analysis, this cannot be used because there is no basis for revenue comparison. With the No Action alternative there is no revenue and only the one time expense of facility removal.

The baseline for comparison of the effects of the alternatives was set at the pre-2001 Wilderness Plan level since the majority of their business offerings (with the exception of YTPS) take place within the wilderness. Also, not all aspects of the 2001 Wilderness Plan were implemented, as many of the 2001 Plan's management tools were superseded by the injunctive relief ordered by the Court in January 2002. The court order had very diverse effects on the pack station operations. Comparing the effects of the alternatives to the period of the court order does not give a level point of comparison of the effects of the alternatives on the recent historical service and economic potential of the business. It is appropriate to go back to the period of the last valid permit in effect prior to 2001 for the point of comparison. Thus the basic question was "How does the proposed action effect the operations and economy of the business as it was under the previous permit?"

Analysis Elements

The team chose the following two analysis elements to effectively guide our analysis:

- Changes to Operations (substantive changes to current business practices)
- Changes to Revenue (substantive positive or negative changes to current income and expenditures)

The team determined an array of indicators that would effectively display changes to the analysis elements (operations and/or revenue). Auditors on the team reviewed these indicators and determined they would be the most appropriate to all businesses and that they would display the substantial changes (greater than 20% difference) with the least error. The resulting array of indicators is discussed below. Changes in revenue (expected

increase, decrease, or no change) were estimated based on analysis of the indicators listed below. Personal communications with some pack stock operators was also used in the analysis process to confirm determinations made in this report.

Indicators
Indicators were determined as a means to compare and contrast the alternatives. The team concluded that the following indicators would effectively measure the difference between alternatives in their effects to commercial pack stock operations reflected by business costs and revenue. These indicators are collectively referred to as "operations" and /or "business operations" in some sections of this document.

1. Number of employees, including these main factors
   - OWCP
   - Wages
   - Charges to Client

2. Number of stock, including these main factors
   - feed
   - training
   - veterinarian care
   - shoeing
   - stock related facilities
   - tack

3. Resources needed to maintain facilities
   - buildings
   - trails
   - fences
   - camp facilities at assigned camps

4. Resources needed for feed and or grazing
   - Cost of feed based on availability of grazing

Methods used to Compare the Alternatives
In order to compare the effects each alternative would have on commercial pack stock business operations, the team determined that the following main components of each alternative would drive the operational variations.
- Environmental Protection Measures
- Type of Service(s) and Amount of Use Authorized
- Amount of Grazing Authorized

Table 3.23: Alternative Comparison Chart

Indicator	Alternative 1- No Permit	Alternative 2 – Proposed Action	Alternative 3
Environmental Protection Measures	Removal of facilities and needed reclamation actions.	Maintenance of fences, trails, etc. Prohibition of use in some areas for resource protection.	Same as Alternative 2
Amount of Use	None, No Permit would be issued.	Maximum number of stock permitted (# head in the corral), Allows for some non wilderness area growth.	Same as Alternative 2 with the addition of destination quotas for use in the Kaiser and Dinkey Lakes wildernesses, and some use restriction in the MWSR
Amount of Grazing	None, no permit would be issued.	Designates grazing areas and available stock nights in each grazing area.	Same as Alternative 2.

Determination of Cumulative Effects Analysis Area
To analyze the cumulative effects of the alternatives on the operations and revenue of pack stations, a cumulative effects analysis area was identified. The analysis area is unique for each pack station and encompasses lands include within individual analysis units (e.g. COO, FLO, CLO) identified under the heading "**Direct and Indirect Effects of Alternatives"**. The time frame of the analysis is 20 years.

3.1.5.3 Overview – Common to All

Affected Environment

A general overview of pack station use allocation, actual use history, and operations (including services and facilities) are described in the following paragraphs.

Allocation History
Pack station use has been authorized over the years in the following two ways: 1) by maximum stock allowed and 2) by maximum number of service days allowed. In some cases there are no service day allocations identified either because there was no administrative requirement or no resource issue identified to set such an allocation. The following table displays the recent history of these allocations by pack station.

Table 3.24: Allocation History

PS	Max Stock		Overnight Service Days*			Day Use Service Days*		
	Benchmark Pre-2001	Current Permit	Benchmark pre-2001	2001 WP**	Post 2001 Court Order (Current Permit)	Benchmark pre-2001	2001 WP*	Post 2001 Court Order (Current Permit)

CPO	60	60	600		419 AA/JM 80 Dinkey	1000		1000
D&F	60 Horses & Mules; 15 Llamas	60 Horses & Mules; 15 Llamas	900		342 AA/JM; 558 DL/K	2000 Kaiser; 1100 Non wilderness		2000 Kaiser 1100 Non Wilderness
HSPS	85 15 llamas	85 15 llamas	1500		893	500		Not Identified
LVPS	20	20	500		35	Not Identified		Not Identified
MTR	45	45	500		Not Identified	Not Identified		319
MPS	70	70	Not Identified		-711 AA - not identified for non-W	Not identified		- 150 AA - 1000 non-W
YTPS	Not identified	100	Not identified		0	Not identified		- 150 AA - not identified for non-wild
				3000 SD total distributed amongst all west side pack stations			600 SD total distributed amongst all west side pack stations	

* A Service Day is defined as one commercial client on National Forest land for any part of a 24-hour day.
**2001 WP Service Days not implemented due to Court Order

Actual Use Data
Maximum number of clients per year was choosen to display the actual amount of use rather than total number of service days because the data for total number of clients was more reliable.

For all pack stations being analyzed, the maximum annual number of clients (2001-2005) whose trips originated on the Sierra National Forest is 15,486; of that, 11% of the clients took trips into the Ansel Adams or John Muir Wildernesses and 0.4% of the clients took trips into the Dinkey Lakes Wilderness. The percentage of clients taking trips into the Kaiser Wilderness is not known because tally data for day use in the Kaiser Wilderness by D&F Pack Station does not differentiate between use in the Kaiser and use in non-wilderness. Table 3.25 displays the maximum annual number of client served by each pack station.

Table 3.25 Maximum Annual Clients (as reported by pack stations) 2001-2005

PS	Overnight				Day Use			
	DL	K	AA/JM	Non-W	DL	K	AA/JM	Non-W
CPO	39	0	214	0	0	0	0	541
D&F	26	96	59	0	0	0	0	1991[2]
HSPS	5	0	530	0	0	0	71	0
LVPS	0	0	37	0	0	0	0	0
MTR	0	0	0	0	0	0	208	0
MPS	0	0	390	0	0	0	65[1]	45
YTPS	0	0	0	196	0	0	74[1]	10899
Total	**70**	**96**	**1230**	**196**	**0**	**0**	**418**	**13476**

[1] Includes trips into Yosemite National Park
[2]Includes Kaiser Wilderness day rides

Operations
There are four categories of stock related service: day rides, spot, dunnage, and full service trips. Any one of these types of trips could travel through the project area destined for either Yosemite or Sequoia/Kings Canyon National Parks.

These stock supported services require skilled stock handling and care. The public generally does not have the specialized skills necessary to travel with stock in the wilderness.

The following describes the typical services and daily operations of a commercial pack station operator providing service to clients. It is important to note that rest days are critical to the health of working animals, consequently they cannot be used every day.

Day Rides
Day rides involve clients riding stock, accompanied by a guide, for periods of a day or less. No overnight equipment is involved. Day rides require saddling and fitting the client to the tack and the riding animal, safety briefings and guiding. Guiding includes interpretive talks about the natural and cultural history of the area. Most day rides fall into the categories of 1 hour, 2 hour, ½ day and full day rides. The pack station staff will spend an average of one to two hours in the morning feeding, repairing tack, setting horse shoes, and saddling from a few saddle horses up to thirty depending on the operations.

Spot and Dunnage trips
Spot trips are trips in which clients ride stock to a destination with a guide, supported with pack stock for equipment and gear. The riding stock, pack stock and guide do not stay with the party. Dunnage trips are trips in which packers using pack stock carry equipment and supplies for clients who are hiking to a pre-arranged destination, and/or pre-arranged re-supplies for clients on long duration trips. The packer does not stay with clients.

For spot and dunnage trips, the packers will spend an average of one to two hours in the morning saddling pack and saddle stock, and packing loads. Loading 8 to 12 mules will take on average up to 2 hours. Trip planning, animal care, equipment repair, fitting clients to the saddle, and safety briefings would also be accomplished before leaving. The packer or packers will lead the strings to the agreed upon camp. The clients will be dropped off at a designated site and the packer will return home at the end of the day. Work hours for spot and dunnage trips are often from dawn to dusk with up to 12 hours in the saddle, and 2-4 hours packing and saddling stock. These trips do not involve hauling feed, grazing, highline or camp setup.

Full service trips
Full service trips involve a guide, cook, or other paid employees of the operator that accompany the clients for the duration of the trip. The full time packer or packers that stay with the party during the duration of the trip handle stock for the clients including saddling, packing the mules, trip planning, animal care, equipment repairs, safety briefings, and possibly trail work to clear trails of debris or obstacles. Once in camp the packer will identify an existing stock holding area for the night to accommodate the total number of stock. The packer will install a highline (placing a rope between trees head high to tie stock on). Any rocks or debris that could injure the animal must be removed. Generally, the process take up to an hour or more and includes unloading the mules, unsaddling, protecting the gear from the weather, setting up the highline, watering stock feeding and then tying stock on the highline. Other camp set up (tents, kitchen area, and campfire) may be required for clients or the cook.

After setting up, if suitable grazing is available the animals will be turned loose and managed to stay out of identified or sensitive areas. Grazing requires hours of work for the packer, but is important for the health of the stock as each animal needs a certain amount of roughage each day to maintain optimum health.

Facilities
All pack stations maintain a headquarters station where most stock related business originates (day rides, overnight rides, etc). Headquarters stations all include corrals, tack and feed storage facilities, an office, client and gear loading and unloading areas, and assorted support buildings. Some pack stations also are permitted to maintain sites known as spike stations. Spike stations are similar in uses to a headquarters station but usually serve fewer clients than the headquarters stations.

Other Services
Some pack station operators provide other services such as meals, lodging, camping, retail sales, wagon rides (pulled by draft horses), campfire programs, horse back riding instructional camps for children, and winter activities (sleigh rides, cross country skiing, winter day rides).

Other Operational Duties
Business activities (accounting, meal preparation, employee training, employee and guest lodging, reservations, marketing, facility maintenance, etc.) and animal care (shoeing, veterinary care, transportation of stock via truck to trailheads, etc.) are included in day-to-day operations of a pack station.

Operational Activities in the Ansel Adams/John Muir (AA/JM) Analysis Unit
A comprehensive discussion of the socioeconomic resource and pack station operational environment for the AA/JM AU can be found in the 2005 Pack Stock Management EIS on page III-90. This EIS incorporates that information by reference. This analysis does not provide further affected environment detail for these wildernesses in this operations analysis section.

Revenue
Annual average gross income for all pack station businesses combined (1998 – 2002) was $750,000 per year.

Environmental Consequences

Alternative 1

Direct, Indirect, and Cumulative Effects
No new permit would result in complete loss of operations on the Sierra National Forest. All facilities would be required to be removed, which would result in a short term increased costs. All revenue for pack stations and the Florence Lake Resort on the SNF would cease.

Packers may be able to purchase and operate pack stations in areas where packing is allowed (e.g. Stanislas, Sequoia, and Inyo National Forests, Yosemite, Sequoia and Kings Canyon National Parks), however, in all cases except LVPS and MTR, the businesses on the Sierra National Forest would cease to exist.

Indirectly, a loss of all stock related services on the Sierra National Forest would bring to an end decades of partnership with packers to supply visitor services and the opportunity for commercial pack stock support for Sierra National Forest administrative needs. And, in at lease one case, where the business has been in the family for two generations, the long term family connection to their operating area on the National Forest would be ended and loss of a long term relationship with returning clientele would also be ended.

There are no known cumulative effects to individual pack stations. Cumulative effects to the industry are discussed in the Economics section.

Alternative 2

Direct, Indirect, and Cumulative Effects

No measurable change from baseline operations would result for pack station operations or revenue. Total herd size remains the same as previously authorized. Authorization for facilities and uses on National Forest lands (with the exception of YTPS) remains substantially static. Opportunities for grazing are similar. Some short term direct effects to operations (e.g. increased labor cost) are expected where environmental protection measures are required. Revenue is expected to remain constant with an opportunity for a slight upward trend over the long term. Packers may be able to purchase and operate pack stations in areas where packing is allowed (e.g. Stanislaus, Sequoia, and Inyo National Forests, Yosemite, Sequoia and Kings Canyon National Parks), however, in most cases, (with the exception of Lost Valley and Muir Trail Ranch) the businesses on the Sierra National Forest would fail. A loss of all stock related services on the Sierra National Forest would bring to an end decades of partnership with packers to supply visitor services and the opportunity for commercial pack stock support for the Sierra National Forest.

In general for all packers, when Alternative 2 is compared to the previous authorization (baseline), there are few, if any direct, indirect, or cumulative effects to pack station operations and potential revenue. Total herd size remains the same as previously authorized. Authorization for facilities and uses on National Forest lands (with the exception of YTPS) remains substantially static. Amount of use is expected to remain similar, with some opportunity for growth. Opportunities for grazing are similar. Some short term direct effects to operations (e.g. increased labor cost) are expected where environmental protection measures are required.

Indirectly, the issuance of a term permit may allow some packers to obtain loans to invest in future capital improvements and marketing efforts, this may result in long term increases in revenue.

Summary for the Ansel Adams/John Muir (AA/JM) Analysis Unit

There would be some modest opportunities for growth in pack station revenue but implementation of a number of controls would likely increase the costs to pack stations providing commercial services in the Ansel Adams and John Muir Wildernesses. These cost increases are likely to be minimal-to-moderate and long-term. This would likely

push the cost to clients of commercial pack stock supported trips higher than their current levels.

A comprehensive discussion of the environmental consequences to the socioeconomic resource and pack station operational environment for the AA/JM AU can be found in the 2005 Pack Stock Management EIS on pages IV- 223, 238, 242, 256 and 257. This EIS incorporates that information by reference.

Cumulative Effects

Overall for operations, relevant past actions include the implementation of various management plans that have affected business operations decisions. Most recent relevant management plans include the programmatic direction in the 2001 Wilderness Plan and the 2005 Pack Stock Management EIS.

As a past action, the 2001 Wilderness Plan management direction changed the way the pack stations ran their operations. Components of the 2001 Wilderness Management Plan that most affected pack stock operations include trailhead quota adjustments, commercial use allocations, Forest Service management of the quota system, restrictions of commercial pack stock to existing and approved trails, and elevational fire closures. For example pack stations were no longer able to self issue wilderness permits, reducing their flexibility to serve the walk-in business and making it more difficult for those pack stations without telephone service to obtain permits for their guests. The 2001 Plan also limited them to designated trails and approved routes. The result was two-fold, 1) it removed use of "short cut" routes that saved time on the trail and 2) it limited their ability to deliver some customers to their desired destinations.

The 2001 court ordered injunctive relief further affected pack station operations and revenue by reducing client party size (from 15 to 12), number of stock per party (from 25 to 20), and reducing allocation of service days by 20% for some pack stations.

Implementation of the 2005 Pack Stock Management EIS meadow suitability and meadow closure determinations applied limitations to Ansel Adams and John Muir wilderness grazing opportunities and total allowable stock nights for some operators.

The most relevant foreseeable action is full implementation of site specific components of the 2005 Pack Stock Management EIS, which are brought forward into this decision. They include management by destination quota, "Stock at One Time" limits in the wilderness, and use trail authorizations.

The Sierra Nevada Forest Plan Amendment (2004) requires that when weed free feed becomes available on a statewide basis, both private and commercial pack stock on National Forest land will be required to utilize it. The exact economic effects of this actions is unknown, but based on implementation if certified weed free programs elsewhere in the Untied States, as slight increase in cost of feed is expected for those pack stations that either have not converted to a weed free product already, or rely heavily on purchased feed for their operations.

Management plans being developed by Sequoia and Kings Canyon and Yosemite National Parks could effect operations for those packers operating in the national parks.

With the exception of the new direction for commercial pack stock use in the Ansel Adams and John Muir Wildernesses, there are no known past, present or future actions or activities in non-wilderness areas that will definitely, when combined with this permit issuance EIS project, have a cumulative impact on commercial pack station operations.

Alternative 3

Direct, Indirect, and Cumulative Effects

For the three businesses that operate in the Dinkey Lakes and Kaiser Wildernesses and the Merced River Wild and Scenic corridor, destination quotas for these areas are not likely to result in measurable effects to operations and revenue (slight positive and slight negative changes should balance out).

All other general direct, indirect and cumulative effects would be the same as for Alternative 2.

3.1.5.4 Pack Station Level Evaluation

1. CLYDE PACK OUTFITTERS (CPO)

The operating area (Figure 3.2) is within COO, DIL, HEL, NEL, DFC, WIS, TUL, and areas within the John Muir Wilderness as shown in Appendix C which is a summary of the 2005 Pack Stock Management EIS pages II-154 to II-163, Table 2.31.

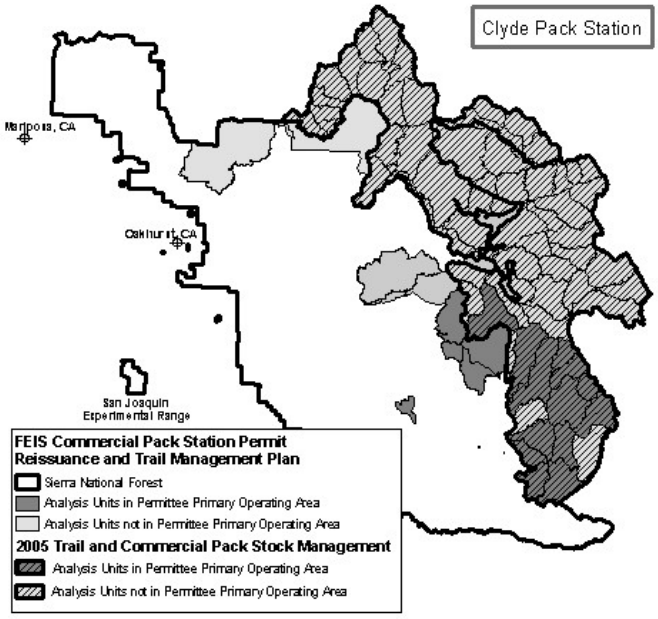


Figure 3.2: Analysis Units used by CPO

History
CPO acquired the pack station in December of 1980 from Bea Wright. Their first operating season was 1981.

Currently Permitted Operations

Term of current permit
Clyde Pack Outfitters held a 10 year permit which expired on 12/31/04. They were issued an extension which expires on 12/31/2006.

Services and Facilities
CPO is authorized to operate three pack station sites, for a combined total of approximately 19 acres in Fresno County. They offer pack stock supported overnight use including full service, spot and dunnage in the Dinkey Lakes and John Muir Wilderness and in Kings Canyon National Park. They also offer 1 hour and 2 hour and half day and full guided day rides outside the wilderness in the Dinkey Creek area. The operating season is approximately from Memorial Day weekend through October 15.

- CPO has no use in the Kaiser or Ansel Adams Wildernesses or in the MWSR corridor.
- A summary of authorized use in the John Muir Wilderness is in Appendix C.

Their authorized facilities include: (see Appendix B for specifics of each site.)

- Pole Corral Headquarters (5.6 acres)
- Dinkey Creek Site (5.7 acres)
- Woodchuck Trailhead Spike Station (3.4 acres)
- Maxson Trailhead Spike Station (1.9 acres)
- Cliff Lake Trailhead Spike Station (2.1 acres)

Operational Indicators for Comparison of Alternatives

Number of Employees
In addition to family members, CPO employs one to two seasonal employees.

Number of Stock
CPO is currently authorized a maximum of (60) horses and mules for operations.

Facilities to be maintained
See Appendix B for authorized facilities.

Grazing
CPO is permitted to incidentally graze pack stock in various areas in the JM Wilderness as described in Appendix C. They are also authorized to incidentally graze pack stock in various areas in the Dinkey Lakes Wildernesses but no grazing is authorized in the Dinkey Lakes Basin within the Dinkey Lakes Wilderness. They are authorized to graze pack stock on non-wilderness lands within the DFC AU (Mill Meadow and Glen Meadow). Annual forest orders establish grazing start dates. Annual operating plans implement grazing standards and guidelines specific to grazing in authorized areas.

Direct and Indirect Effects of Alternatives
Effects were determined for facilities and/or operations within the COO, DIL, HEL, NEL, DFC, TUL and WIS analysis units.

Cumulative Effects
These are described in the Environmental Consequences – Overview.

Alternative 1

No new permit would result in complete loss of operations on the Sierra National Forest. All facilities would be required to be removed which would result in a short term increased cost. All revenue for CPO on the SNF would cease.

Alternative 2

Determination: Little change to most operations. No expected change to revenue. Expect an increase in costs for maintenance.

Rationale: Total number of stock (60) did not change from current number and overnight service days in the Dinkey Lakes Wilderness did not change from those currently authorized. Limits on non-wilderness overnight and day use would be based on total stock authorized and are not likely to result in change from current. Grazing stock nights in Mill Meadow are decreased slightly from recent use. Grazing stock nights in Glen Meadow will be determined after the fence line is reestablished; this could result in an increase or decrease of stock nights available. Reestablishment of fence line at Glen Meadow will require materials and labor costs for the pack station.

Alternative 3

Determination: Destination quotas for the Dinkey Lakes Wilderness are not likely to result in changes to operations and revenue (slight positive and slight negative changes should balance out). Other effects are expected to be similar as described for Alternative 2.

Rationale: Except for the Cliff Lake destination, the total number of trips per year allowed in the Dinkey Lakes Wilderness by CPO is a slight increase as compared current use. The reduced destination quota assigned to Cliff Lake may slightly reduce revenue, but should not affect business operations. The limit on total number of overnight stock should not affect business operations or revenue.

2. D&F PACK STATION (D&F)

The operating area (Figure 3.3) is within KAI, HNE, HNW, COO, DIL, HEL, NEL, EDI, CHQ, FLO analysis units and areas within the Ansel Adams and John Muir Wildernesses as shown in Appendix C which is a summary of the 2005 Pack Stock Management EIS pages II-154 to II-163, Table 2.31.

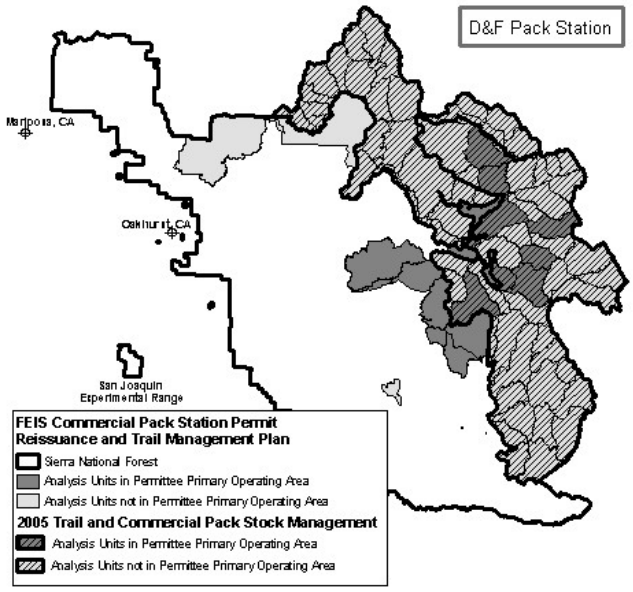


Figure 3.3: Analysis Units used by D&F

History

In the 1910s, teens, and 20s, SCE maintained several pack stock camps at Huntington Lake to conduct surveys in connection with the hydro projects and lakes. In 1930 Anita Walling sold Vaud Cunningham the Lake Hotel Company which included 45 head of stock, 30 riding saddles, 42 pack outfits, four camp cooking outfits and much more. In 1939 Vaud Cunningham bought SCE pack stock being used at the Huntington Lake Lodge. Tourist packers operated until 1945 when the outfit was sold to Dillard and his son, Floyd Fike hence the name D&F Pack Station. In 1954 the Fikes bought out Glen Burns' pack station near Billy Creek and moved four of the buildings to their present sites at D&F Deer Creek headquarters and Badger Flat Spike Station. In 1954 there were 130 head of stock at the Huntington corrals. In 1980 Brad Myers (a former employee of Fikes) purchased the operation and continues to operate as D&F Stables.

Currently Permitted Operations

Term of current permit

D&F was issued a 10 year permit which expires on 12/31/06.

Services and Facilities
D&F is authorized to operate an 8 acre pack station within Fresno County offering pack stock supported overnight use which includes full service, spot and dunnage services in the Kaiser, Dinkey Lakes, John Muir and Ansel Adams Wildernesses. They offer 1 hour, 2 hour, ½ day and all day rides within the Kaiser Wilderness and outside the wilderness. Non-wilderness day use occurs near the pack station on use trails and system roads and trails in the general vicinity of: Huntington Lake. The operating season is approximately from Memorial Day weekend through October 31.

- D&F has no use in the MWSR corridor.
- A summary of authorized use in the Ansel Adams and John Muir Wildernesses is in Appendix C.

Their operating facilities consist of a headquarters at Huntington Lake, a spike station at Badger Flat and one at Lake Thomas A. Edison (see Appendix B for specifics of each site).

Operational Indicators for Comparison of Alternatives

Number of Employees
In addition to family members 2-6 seasonal employees.

Number of Stock
D&F is currently authorized a maximum of (60) horses and mules for operations.

Reported Day Use
D&F provides day rides along trails that go in and out of the wilderness boundary at points along the trail. All reported day use is in the Kaiser Wilderness.

Facilities to be maintained
See Appendix B for authorized facilities.

Grazing
Permittee is not currently authorized to pasture or graze pack stock on non-wilderness lands but is authorized to incidentally graze pack stock in various areas in the Kaiser and Dinkey Lakes Wildernesses. No grazing is authorized in the Dinkey Lakes Basin within the Dinkey Lakes Wilderness. Use in the Ansel Adams and John Muir Wilderness are summarized in Appendix C. Annual forest orders establish grazing start dates. Annual operating plans implement grazing standards and guidelines specific to grazing in authorized areas.

Direct and Indirect Effects of Alternatives
Effects were determined for facilities and/or operations in the KAI, HNE, HNW, COO, DIL, HEL, NEL, EDI, CHQ and FLO analysis units.

Cumulative Effects
These are described in the Environmental Consequences – Overview.

Alternative 1
No new permit would result in complete loss of operations on the Sierra National Forest. All facilities would be required to be removed which would result in a short term increased cost. All revenue for D&F on the SNF would cease.

Alternative 2
Determination: Little change to most operations and no change to revenue. Expect an increase in costs for maintenance.

Rationale: Total number of stock (60) did not change from current number. No use of llamas was requested in the pack station's application. Allowable service days for day ride use in the Kaiser Wilderness and overnight use in the Dinkey Lakes and Kaiser Wildernesses did not change from those currently authorized. Restrictions within the Kaiser Wildernesses limiting stock access to two lakes will still allow for spot and dunnage trips and should have little operational effect. Grazing restrictions near Nellie Lake may require feed to be packed in prior to late season use. Limits on non-wilderness overnight and day use would be based on total stock authorized and are not likely to result in change from current. Implementing erosion control measures at Deer Creek and Badger Flat and removal of non-native plants at Huntington Lake headquarters as described in Chapter 2 and called for in Alternative 2 will require an increase in labor costs.

Alternative 3
Determination: Destination quotas in the Dinkey Lakes and Kaiser Wildernesses are not likely to result in changes to operations or revenue (positive and negative effects should balance out). Other effects are expected to be similar as described for Alternative 2.

Rationale: The total number of trips per year allowed in the Dinkey Lakes and Kaiser Wildernesses by D&F are essentially equivalent to current use in those areas. The limits on total number of overnight stock should not affect business operations or revenue.

3. HIGH SIERRA PACK STATION (HSPS)

The operating area (Figure 3.4) is within EDI, CHQ, FLO, COO, DIL, HEL, NEL and areas within the Ansel Adams and John Muir Wildernesses as shown in Appendix C which is a summary of the 2005 Pack Stock Management EIS pages II-154 to II-163, Table 2.31.

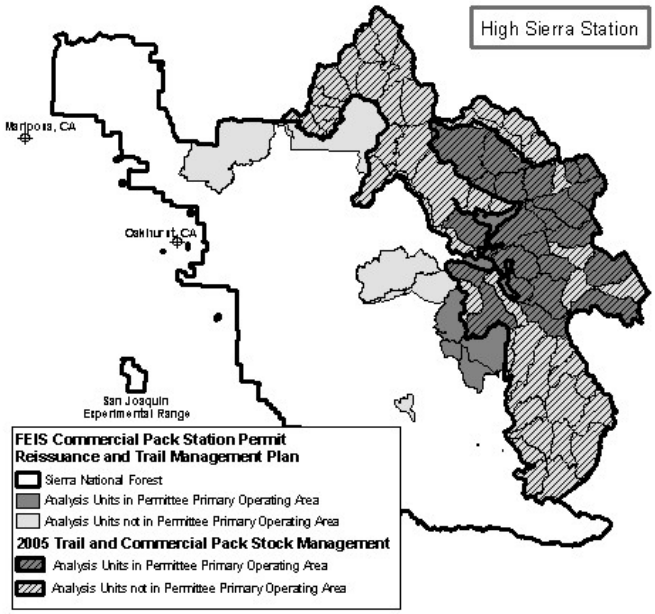


Figure 3.4: Analysis Units used by HSPS

History

The Cunningham family has been operating the HSPS since 1948. Its original headquarters was located at Mono Hot Springs where they operated with a herd of 125 horses and mules. In 1970 the main headquarters was moved to Lake Thomas A. Edison.

Currently Permitted Operations

Term of current permit

HSPS's current 10 year permit expires on 12/31/08.

Services and Facilities

High Sierra is authorized to operate a 9 acre pack station within Fresno County offering pack stock supported overnight use which includes full service, spot and dunnage services in the Dinkey Lakes, John Muir, Ansel Adams Wildernesses and Kings Canyon National Park. They offer 1 hour, 2 hour, ½ day and all day rides within the Ansel Adams and John Muir Wildernesses. No non-wilderness day use was reported in the years 2001-2005, but non-wilderness day use has been known to occur during those years on use trails and system roads and trails in the general vicinity of Edison and Florence

Lakes. The operating season is approximately from Memorial Day weekend through October 31.

- HSPS has no use in the MWSR corridor.
- A summary of authorized use in the Ansel Adams and John Muir Wildernesses is in Appendix C.

Their operating facilities consist of a headquarters at Lake Thomas A. Edison and a spike station at Florence Lake (see Appendix B for specifics of each site).

Operational Indicators for Comparison of Alternatives

Number of Employees
In addition to family members 4-8 seasonal employees.

Number of Stock
High Sierra is currently authorized a maximum of (85) horses and mules for operations.

Reported Day Use
High Sierra provides day rides along trails that go in and out of the wilderness boundary at points along the trail. All their day use is reported as use in the John Muir Wilderness.

Facilities to be maintained
See Appendix B for authorized facilities.

Grazing
Permittee is authorized to incidentally graze pack stock in various areas in the Dinkey Lakes, John Muir and Ansel Adams Wildernesses. No grazing is authorized in the Dinkey Lakes Basin within the Dinkey Lakes Wilderness. Use in the Ansel Adams and John Muir Wilderness as described in the 2005 Pack Stock Management EIS. Annual forest orders establish grazing start dates. Annual operating plans implement grazing standards and guidelines specific to grazing in authorized areas.

Direct and Indirect Effects of Alternatives
Effects were determined for facilities and/or operations in the EDI, CHQ, FLO, COO, DIL, HEL, NEL analysis units.

Cumulative Effects
These are described in the Environmental Consequences – Overview.

Alternative 1

No new permit would result in complete loss of operations on the Sierra National Forest. All facilities would be required to be removed which would result in a short term increased cost. All revenue for HSPS on the SNF would cease.

Alternative 2

Determination: No change to most operations or revenue. Expect an increase in costs for maintenance.

Rationale: Total number of stock (85) did not change from current number. No use of llamas was requested in the pack station's application. Allowable service days for overnight use in the Dinkey Lakes Wilderness are similar to those currently utilized. Limits on non-wilderness overnight and day use would be based on total stock authorized and are not likely to result in change from current. Implementing erosion control measures and removal of non-native plants called for in Alternative 2 will require an increase in labor costs.

Alternative 3

Determination: Destination quota in the Dinkey Lakes Wilderness is not likely to result in changes to operations or revenue. Other effects are expected to be similar as described for Alternative 2.

Rationale: The total number of trips per year allowed in the Dinkey Lakes Wilderness by HSPS is essentially equivalent to current use. The limits on total number of overnight stock should not affect business operations or revenue.

4. LOST VALLEY PACK STATION (LVPS)

The operating area (Figure 3.5) is within FLO and areas within the John Muir Wilderness as listed in Appendix C, which is a summary of the 2005 Pack Stock Management EIS pages II-154 to II-163, Table 2.31.

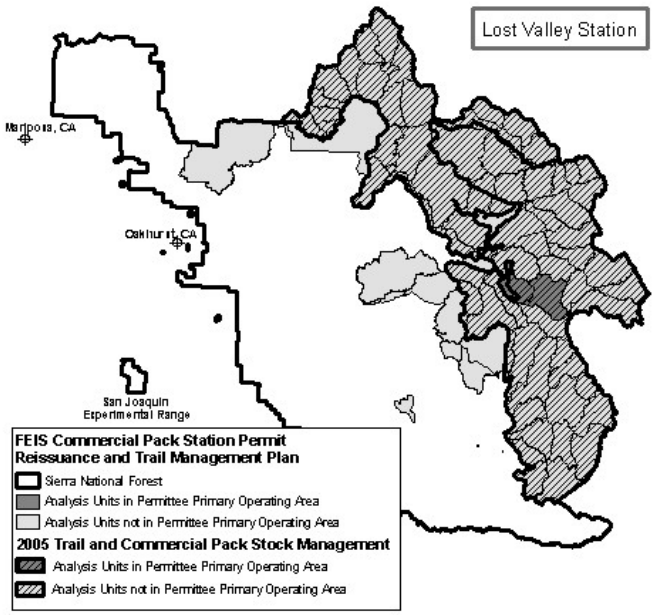


Figure 3.5: Analysis Units used by LVPS.

History

In 1932, Fred Ross established a camp for boys on 40 acres of land he purchased from George Smith. The Lost Valley Boys' Camp was operated by Ross and his partner David McKenzie, from 1934 to the onset of World War II. In 1935, he built his permanent base camp near Blayney Meadow. Along with the base camp, Ross had a pack station at the southeastern edge of Florence Lake. In 1938, the District Ranger gave Ross verbal permission to construct a storage shed and corral at Florence Lake. The LVPS had both horses and burros. The horses were used to provide "spot packing services" to walking parties and the burros were used to pack gear on group outings on surrounding National Forest lands and up into Sequoia and Kings Canyon National Parks. In 1958 Fred Ross was issued a SUP for a storage shed and corral. Two years later and upon request, Mr. Ross was given approval to construct an A-frame cabin for both storage and overnight travelers. The cabin and storage shed were built in 1961 at the present location for LVPS.

Currently Permitted Operations

For this analysis, LVPS operates in the FLO AU and the John Muir Wilderness.

Term of current permit
Lost Valley was operating under a 10 year permit which was due to expire on 12/31/08. In 2004 under authority of the Court Order they were issued a new permit which expires on 12/31/06.

Services and Facilities
LVPS is authorized to operate a pack station within Fresno County offering pack stock supported overnight use including full service, spot and dunnage services in the John Muir Wilderness and Kings Canyon National Park. The operating season is approximately from Memorial Day weekend through October 31.

- Lost Valley Pack Station has no use in the Kaiser, Dinkey Lakes, or Ansel Adams Wildernesses or the MWSR corridor.
- Use and services in the John Muir Wilderness are summarized in Appendix C.

Their main headquarters is located on their private property at Blayney Meadow. They have an additional headquarters located at Florence Lake on the SNF. Refer to Appendix B for facilities specific to each site.

Operational Indicators for Comparison of Alternatives

Number of Employees
In addition to family members, Lost Valley employees one to two seasonal employees as needed.

Number of Stock
Lost Valley Pack station maintains their stock on private land. For packing and day ride operations Lost Valley is currently authorized a maximum of (20) horses, mules and/or burros.

Facilities to be maintained
See Appendix B for authorized facilities.

Grazing
Lost Valley is permitted to incidentally graze pack stock in various areas in the JM Wilderness as described in the summary in Appendix C. Annual forest orders establish grazing start dates. Annual operating plans implement grazing standards and guidelines specific to grazing in authorized areas.

Direct and Indirect Effects of Alternatives
Effects were determined for facilities and/or operations in the FLO analysis unit.

Cumulative Effects
These are described in the Environmental Consequences – Overview.

Alternative 1

No new permit would result in complete loss of operations on the Sierra National Forest, as well as a decline in operations on the private property portion of the business. Loss of operations on the private lands is likely to occur because most LVPS clients are dependant on the Florence Lake ferry service (operated by MTR) or pack stock services to access the recreation opportunities located on LVPS private lands. There would be a loss of revenue due to not allowing continued day and overnight use on National Forest lands. The Florence Lake headquarters facilities would be required to be removed. This would result in a short term increased cost.

Alternative 2

Determination: No change to operations or revenue.

Rationale: Total number of stock allowed (20) does not change from current number. Limits on non-wilderness overnight and day use would be based on total stock authorized and are not likely to result in change from current.

Alternative 3

Determination: Changes to operations and revenue are expected to be the same as described for Alternative 2.

5. MUIR TRAIL RANCH (MTR)

The operating area (Figure 3.6) is within FLO and areas within the John Muir Wildernesses as shown in Appendix C, which is a summary of the 2005 Pack Stock Management EIS pages II-154 to II-163, Table 2.31.

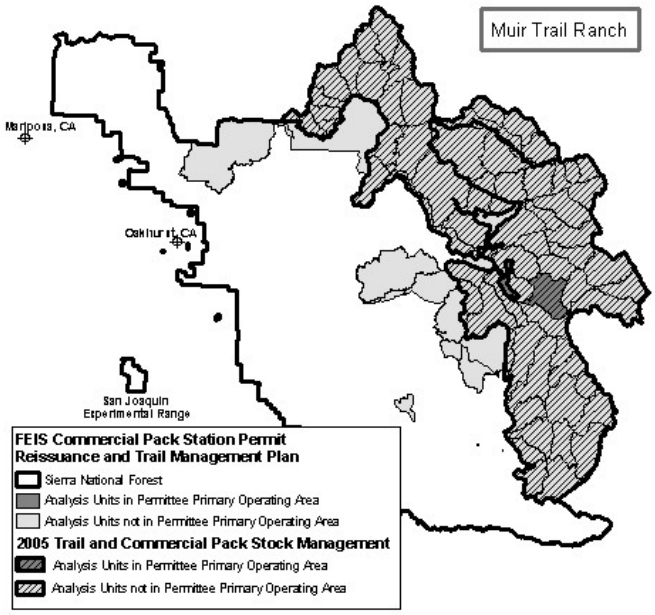


Figure 3.6: Analysis Units used by MTR

History

In 1940, John Shipp sold his land to Jack Ducey who named the ranch the Diamond D Guest Ranch. Ducey built two cabins and opened the ranch to the public. Nate and Pansy Clines purchased the ranch in 1946 then sold the ranch in 1953 to Karl and Adeline Smith. The Smiths renamed it the John Muir Ranch. They have increased the capacity of the ranch by building three additional cabins. The 200-acre ranch surrounds the land-locked Ross and McKenzie parcels. The Smiths also hold the right-of-way permit for the access road through National Forest land.

Currently Permitted Operations

For this analysis, MTR operates in FLO analysis unit.

Term of current permit

Muir Trail Ranch had a five year permit which expired on 12/31/01. Under authority of the Court Order they were issued an extension which expires on 12/31/06.

Services and Facilities

Muir Trail Ranch is authorized to operate a pack station within Fresno County offering pack stock supported overnight use from their private land (within the Sierra National Forest) including full service, spot and dunnage services in the John Muir Wilderness

and Kings Canyon National Park. They offer 1 hour, 2 hour, ½ day and all day rides departing from their private property into the John Muir Wilderness and non wilderness area near Florence Lake. The operating season is approximately from Memorial Day weekend through October 31.

- Muir Trail Ranch reported no use (2001-2005) in the Dinkey Lakes, Kaiser, or Ansel Adams Wildernesses or in the MWSR.

- Use and services in the John Muir Wilderness are described in Appendix C.

There are no pack station operating facilities on National Forest land, they operate from their main headquarters on private property near Blayney Meadow. They also operate the Florence Lake Resort which is located on National Forest land. At the Florence Lake Resort they offer retail merchandise, groceries, fishing tackle, gas, oil, ferry boat service and boat and motor rentals. Refer to Appendix B for facilities specific to each site.

Operational Indicators for Comparison of Alternatives

Number of Employees
In addition to family members, Muir Trail Ranch employs between two to six seasonal employees

Number of Stock
Muir Trail Ranch is currently authorized a maximum of (45) horses and mules for operations.

Facilities to be maintained
See Appendix B for authorized facilities.

Grazing
Muir Trail Ranch is permitted to incidentally graze pack stock in various areas in the JM Wilderness (as described in Appendix C). Annual forest orders establish grazing start dates. Annual operating plans implement grazing standards and guidelines specific to grazing in authorized areas.

Direct and Indirect Effects of Alternatives
Effects were determined for operations in the FLO analysis unit.

Cumulative Effects
These are described in the Environmental Consequences – Overview.

Alternative 1

No new permit would result in complete loss of operations on the Sierra National Forest, as well as a decline in operations on the private property portion of the business. Loss of operations on the private lands is likely to occur because most MTR clients are dependant on the Florence Lake ferry service or pack stock services to access the recreation

opportunities located on MTR private lands. There would be a loss of revenue due to not allowing continued day and overnight use on National Forest lands.
The facilities at Florence Lake (store, ferry service etc.) would be required to be removed which would increase their cost outlay. All revenue from the Florence Lake Store and ferry service would be completely lost. This would result in a short term increased cost.

Alternative 2

Determination: No change to operations or revenue.

Rationale: Total number of stock allowed (45) does not change from current number. Limits on non-wilderness overnight and day use would be based on total stock authorized and are not likely to result in change from current.

Alternative 3

Determination: Changes to operations and revenue are expected to be the same as described for Alternative 2.

Rationale: Rationale: Even though the operating area is limited in this alternative to the FLO AU and AA/JM Wildernesses, this does not affect operations because no use has occurred in COO, DIL, HEL, and NEL in the recent past.

6. MINARETS PACK STATION (MPS)

The operating area (Figure 3.7) is within NED, CLO, and areas within the Ansel Adams Wilderness as shown in Appendix C which is a summary of the 2005 Pack Stock Management EIS pages II-154 to II-163, Table 2.31.

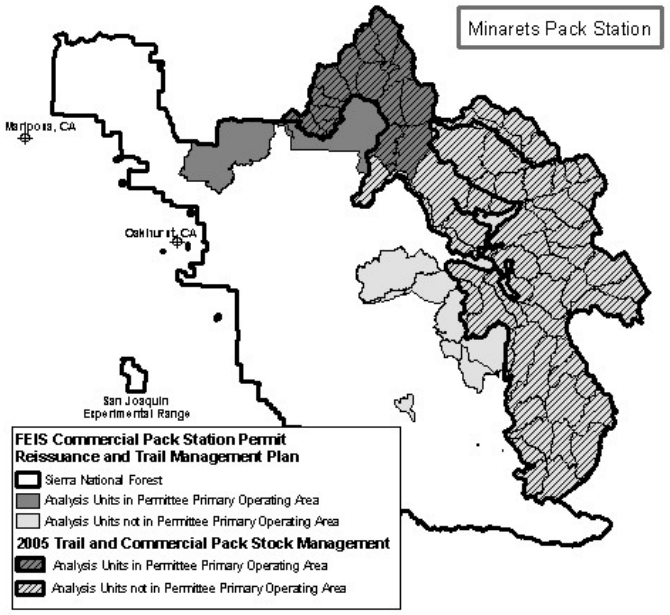


Figure 3.7: Analysis Units used by MPS

History
The present owners have been in business since 1992. The pack station has been located at Miller Meadow since the 1930's.

Currently Permitted Operations
For this analysis, MPS operates in both the CLO and NED analysis units.

Term of current permit
MPS holds a 10 year permit which expired on 12/31/04. Under authority of the Court Order they were issued an extension which expires on 12/31/06.

Facilities and Services
MPS is authorized to operate a 17 acre pack station in Madera County offering pack stock supported overnight use including full service, spot and dunnage services in the Ansel Adams Wilderness and Yosemite National Park. They offer 1 hour, 2 hour, ½ day, all day ride and cattle drives outside the wilderness and ½ day and full day rides into the wilderness. Non-wilderness day use occurs near the pack station on use trails and system roads and trails in the general vicinity of: Miller Meadow; Clover Meadow; and various trailheads. The operating season is approximately from Memorial Day weekend through November 1.

- MPS has no use in the Dinkey Lakes, Kaiser, John Muir Wildernesses or in the MWSR corridor.
- Use and services in the Ansel Adams Wilderness are summarized in Appendix C.

Their facilities consist of a headquarters at Miller Meadow which includes a Lodge (store, restaurant, and lodging for guests), a 15 site campground, and associated infrastructure. Refer to Appendix B for facilities specific to each site.

Operational Indicators for Comparison of Alternatives

Number of Employees
In addition to family members, MPS employs between four - eight seasonal employees.

Number of Stock
MPS is currently authorized a maximum of (70) horses and mules for operations.

Facilities to be maintained
See Appendix B for authorized facilities.

Grazing
MPS is not currently authorized to pasture or graze pack stock on non-wilderness lands. All feed is transported in for use at the pack station facility. MPS is permitted to incidentally graze pack stock in various areas in the Ansel Adams Wilderness (as described in Appendix C. Annual forest orders establish grazing start dates. Annual operating plans implement grazing standards and guidelines specific to grazing in authorized areas.

Direct and Indirect Effects of Alternatives
Effects were determined for facilities and/or operations in the CLO and NED analysis units.

Cumulative Effects
These are described in the Environmental Consequences – Overview.

Alternative 1
No new permit would result in complete loss of operations on the Sierra National Forest. All facilities would be required to be removed which would result in a short term increased cost. All revenue for MPS on the SNF would cease.

Alternative 2
Determination: Little change to most operations. No expected change to revenue. Expect an increase in costs for maintenance.

Rationale: Total number of stock (70) does not change from current number. Limits on non-wilderness overnight and day use would be based on total stock authorized and are

not likely to result in change from current. Newly authorized grazing opportunity at Soldier Meadow (180 stock nights) could result in a slight decrease in feed cost if fully utilized. Maintenance of the Soldier Meadow fence line and modification of the corral at Miller Meadow headquarters will require materials and labor costs. Prohibiting continued use of some use trails will require longer routes be taken to reach wilderness trail heads, this is likely to result in a small increase in operations costs.

Alternative 3

Determination: Effects to operations and revenue are expected to be the same as described for Alternative 2.

Rationale: Most actions in Alternative 3 refer to the Kaiser and Dinkey Lakes Wildernesses or the MWSR corridor. MPS has no historical use in any of these areas.

7. YOSEMITE TRAILS PACK STATION (YTPS)

The operating area (Figure 3.8) is within NED and areas within the Ansel Adams Wilderness as shown in Appendix C which is a summary of the 2005 Pack Stock Management EIS pages II-154 to II-163, Table 2.31.

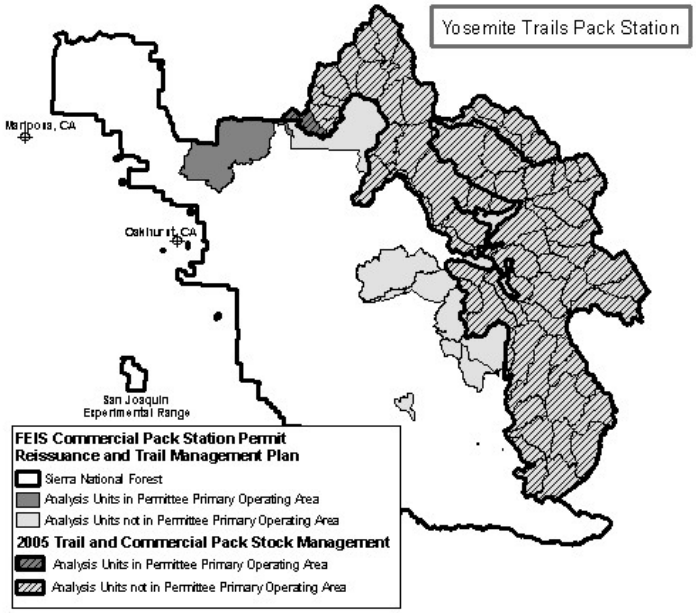


Figure 3.8 Analysis Units used by YTPS.

History
YTPS was established in 1938 and has been operated by the family of the current permit holder since 1965. The mission of YTPS is to provide safe and meaningful recreational opportunities to the general public.

Currently Permitted Operations
For this analysis, YTPS operates in the NED analysis unit.

Term of current permit
YTPS held a 4 year permit which expired on 12/31/96. The permit was amended to extend until 12/31/03. Under authority of the Court Order they were issued a new permit which expires on 12/31/06.

Services and Facilities
YTPS is authorized to operate a 7.7 acre pack station in Mariposa County offering pack stock supported overnight use including full service, spot and dunnage services in non wilderness areas of the SNF including the South Fork of the MWSR area, and YNP. For overnight trips into YNP, YTPS crosses a small portion (~1mile) of the Ansel Adams Wilderness. They offer 1 hour, 2 hour, ½ day, all day ride, and cattle drives outside the

wilderness and ½ day and full day rides into YNP. Most non-wilderness day use occurs near the pack station on use trails and system roads and trails in the general vicinity of Jackson Road near the town of Fish Camp. Other services include: livestock petting, equestrian and family camps, arena work & vaulting, wagon rides, campfire programs (Jamborees), special needs trips (i.e. senior citizens and mentally or physically challenged), sleigh rides, and both overnight and day use cross-country ski tours. The operating season is year-round with a low use time in late spring during the snow melt.

- YTPS has no use in the Dinkey Lakes, Kaiser, or John Muir Wildernesses.
- Use and services thru the Ansel Adam Wilderness into YNP are described in Appendix C.

Their facilities consist of a headquarters on Jackson Road (Forest Road 6S10) near the town of Fish Camp which includes an office, barbecue area (tables, campfire pit, etc), tent platforms, and associated infrastructure. Refer to Appendix B for facilities specific to each site.

Table 3.26: Overnight use in the South Fork of the Merced Wild and Scenic River area.

Year	Total # Trips	Total # Clients	Type Service	# Days	# Stock
2003	4	15	all expense	3 (avg)	10 (avg)
2004	1	8	all expense	5	19
2005	0	0	n/a	0	0

Operational Indicators for Comparison of Alternatives

Number of Employees
In addition to family members, YTPS employs two full time managers and between four - eight seasonal employees.

Number of Stock
YTPS is currently authorized a maximum of 100 horses and mules.

Facilities to be maintained
See Appendix B for authorized facilities.

Grazing
All feed is transported in for use at the pack station. YTPS is not permitted to incidentally graze pack and saddle stock within the Ansel Adams Wilderness (as described in the Appendix C). Feed is currently trucked or packed into most overnight stock camps. Meadows located adjacent to some designated stock camps are grazed

incidentally. Annual forest orders establish grazing start dates. Annual operating plans implement grazing standards and guidelines specific to grazing in authorized areas.

Direct and Indirect Effects of Alternatives
Effects were determined for facilities and/or operations in the NED analysis unit.

Cumulative Effects
These are described in the Environmental Consequences – Overview.

Alternative 1
No new permit would result in complete loss of operations on the Sierra National Forest. All facilities would be required to be removed which would result in a short term increased cost. All revenue for YTPS on the SNF would cease.

Alternative 2
Determination: Little change expected for operations. An increase in costs for maintenance and an increase in revenue can be expected.

Rationale: Total number of stock (100) did not change from current number. Limits on non-wilderness overnight and day use would be based on total stock authorized and are not likely to result in change from current. Stock nights available in non-wilderness meadows will provide an adequate amount of grazing resources to YTPS. Alternative 2 would prohibit continued use by YTPS on three use trails integral to their day ride business. The permit holder may choose to reroute or fix the items requiring closure of these trails. This work would be negotiated with the Forest Service. When/if these items are addressed, the permit holder would be authorized to use the trail(s) in question. This would result in an increase in maintenance costs. Construction and occupancy of a new headquarters site (Mile High) would allow for increased winter services and increased market visibility.

Alternative 3
Determination: Effects in operations and revenue are expected to be the same as described for Alternative 2.

Rationale: The only difference between Alternative 2 and 3 for YTPS are 1) a limit on total number of trips to the MWSR corridor and 2) an overnight stock limit at the campsite in the MWSR corridor. Since the total number of trips per year assigned to this destination is slightly greater that the total number of trips used over the past 3 years, the destination quota assigned should not measurably affect business operations or revenue. The limit on total number of overnight stock should not affect business operations or revenue, because there is limited opportunity for day ride use from the site once an all expense camp is established. Neither of these items is expected to have an effect on business operations or revenue.

Economics

Affected Environment

The project area includes activities in Mariposa, Madera and Fresno Counties. This section examines the economic environment of these regions as affected by the alternatives. These counties provide services to visitors and employees and receive tax revenue or benefits through retail and other trade. Consequently, these counties could be affected by changes in the commercial pack stock industry. Extensive information on Madera and Fresno Counties is contained in the 2005 Pack Stock Management EIS. Mariposa County was not included in that analysis so a brief synopsis for Mariposa County is included below.

Pack stock operations within Mariposa County are primarily non-wilderness day use. They include the headquarters for YTPS, some of the shorter day rides, sleigh and wagon rides. Most of the backcountry and wilderness use for YTPS occurs in Madera County.

Table 3.27: Pack Station Influence Regions

Pack Station	Location of Operations (County)	Local Community
Yosemite Trails (YTPS)	Mariposa and Madera	Fish Camp/Oakhurst
Minarets (MPS)	Madera	North Fork
D&F (D&F)	Fresno	Lakeshore/Shaver
High Sierra (HSPS)	Fresno	Lakeshore/Shaver
Muir Trail Ranch (MTR)	Fresno	Lakeshore/Shaver
Lost Valley (LVPS)	Fresno	Lakeshore/Shaver
Clyde (CPO)	Fresno	Dinkey/Wishon

Population and Demographics

The 2004 population estimate for Mariposa County is 18,000 (U.S. Census, 2006). From 1990 to 2000 the population in Mariposa County increased 19.8%, which is a faster rate than the State of California which increased 13.6% for the same period. The population density in 2000 was 11.8 people per square mile, which is low compared to Madera County (57.6) and Fresno County (134.1).

Demographic characteristics for Mariposa County are somewhat different than Madera and Fresno Counties. The median age in Mariposa County is 42.9 years as compared to 29.9 in Fresno County and 32.7 in Madera County (California's median age is 33.3). Presumably this slightly older population reflects that Mariposa County is a destination for retirees, as are many foothill communities in California.

Compared to Madera and Fresno Counties, Mariposa has a significantly lower Hispanic population, 7.8% as opposed to 44% for both Madera and Fresno Counties.

Economics

Yosemite National Park spans several counties, including Mariposa and Madera. The presence of Yosemite National Park in this region is a main engine for the economy. YNP draws approximately 3.5 million visitors a year. The two most used entrances; State Highway 140 and State Highway 41 pass through Mariposa County. The community of Mariposa is highly dependant on the tourist dollar. According to the 2000 census 23% of people living in Mariposa County are employed in the "entertainment, recreation, accommodation, and food services" industry. In addition, 25% of people in the county state they work for the Government, which shows the indirect effect of Park Service and Forest Service presence. The per capita income for Mariposa County in 1999 was $18,190, slightly less than the state average of $22,711.

Economic Analysis of Pack Station Activities

A comprehensive analysis of the economic influence of the pack station industry was presented in the 2005 Pack Stock Management EIS using the Impact Analysis for Planning (IMPLAN) model. It included a display of the contributions by westside pack stations within Mariposa, Madera and Fresno Counties as a group. The analysis included their entire operation and not just the part within the Ansel Adams and John Muir Wildernesses. The results of this analysis are presented in the table below:

Table 3.28: Regional economic impact of pack station activities

Direct Labor Income	$679,762
Indirect Labor Income	$189,671
Induced Labor Income	$661,385
Total Income	$1,530,818
Direct Employment	39.5
Indirect Employment	6.7
Induced Employment	20.2
Total Employment	66.4

Using the IMPLAN model, commercial pack station related activity generates approximately $679,762 in direct labor income in the project area. This is labor related to the direct spending of visitors on various goods and services such as food and beverage, gasoline, and lodging. This spending is expected to generate another $189,671 in indirect labor income. This type of labor income is related to indirect industries needed to support the direct industries impacted by the initial round of visitor spending. Lastly, approximately $661,385 in induced labor income is generated by the commercial pack stock operations. Induced labor income is related to household spending of income earned from either the pack stations or their suppliers. Given assumptions and spending patterns put into the model, commercial pack stock operations are currently generating approximately 1.5 million dollars in labor income for the project area and approximately 66 jobs for the entire project area. While notable, when compared to the regional economy the economic contribution of pack stations in terms of direct labor income and

direct employment is relatively minor, especially considering the agricultural economy of Fresno and Madera Counties. However, as one scales down to the local community level, the importance of the pack stations increase, but the precise impact of tourism services is difficult to quantify.

Environmental Consequences

Alternative 1

Direct Effects

Under Alterative 1 the pack stations would not be permitted, and all facilities on National Forest System land would be removed. There would be a direct loss of the contribution that commercial pack stock operations make to the labor income and employment to the regional and local economy. Clearly for those families that make their living in this industry the effects would be personally devastating. In addition to the loss of income they would be required to expend funds to remove the facilities from the SNF.

Indirect Effects

The elimination of the pack stock industry from the SNF would have indirect effects on the tourist based economies of all the associated communities. Clients of the pack stations would not be attracted to the area and most likely would take their business elsewhere, spending money in other communities. Connected businesses such as gas stations, groceries, motels, etc. would lose customers and therefore revenue.

Cumulative Effects

The economic contribution from the pack stock industry would be irretrievably lost. Those people seeking the recreation experience provided by the commercial pack stock operations would likely go elsewhere. There is no substitute activity that local communities could promote that would directly take the place of the services offered by the pack stock operators. When subtracted from other past, present and foreseeable actions that affect the economy, the effect of removing the pack stations varies depending on the scale. Economically, at the pack station owners level it is devastating, at the local level the effect is noticeable but less pronounced, and at the county level the effect is minimal.

Alternative 1

Direct Effects

Both Alternatives 2 and 3 would have similar economic effects. For most of the pack stations, with the exception of YTPS, CPO and D&F, the majority of their business and income is generated from services in the Ansel Adams and John Muir Wildernesses. Consequently the effects of the 2005 Pack Stock Management EIS have a greater influence over the economic health of the businesses than the proposed actions in the non-wilderness areas and Kaiser and Dinkey Lakes Wildernesses. The 2005 Pack Stock Management EIS fully discloses the economic impact on these businesses. In summary the findings for operations in the Ansel Adams and John Muir have little effect on the number of employees that would be hired. Therefore the direct economic contribution of labor income and employment would be similar to the current situation.

For YTPS and to a lesser extent D&F and CPO these alternatives allow continued use of the non-wilderness system trails and Kaiser and Dinkey Lakes Wildernesses in a manner that would not have significant direct economic effect on their operations. Alterative 3, which directs more specifically the level use within the Kaiser and Dinkey Lakes Wildernesses and MWSR than Alternative 2, may require some minor alteration in business practices but the economic effects would be minor.

For all of the operations there may be expenditures required to bring certain aspects of the facilities up to standard (listed in Chapter 2), but in general these are one time remediations that would be implemented over time and would not have long term on-going economic effects.

Indirect Effects

The tourist based economic income in the communities associated with the pack stations would continue. Clients of the pack stations would continue to be attracted to these areas and would expend money at local businesses.

Some alternations in the source of grazed feed as a result of implementing the grazing prescriptions (e.g. purchase and pack in feed) may have economic effect. On the whole this would not be a large impact, positive or negative, on the pack stations. However in a few individual cases the changes in operations may cause minor economic effects.

There would be some stability in the investment and economy of the local communities as pack station operators would have secured a special use permit for continued operations for a specified term.

Summary for the Ansel Adams/John Muir (AA/JM) Analysis Unit

Decisions made in the 2005 Packstock Management EIS may have a positive indirect effect to the regional economy. The regional economy would likely experience increased employment and labor income contributions from commercial pack stock operations. When compared to the economy as a whole, however, these increases are likely to be negligible-to-minor. There are no known effects to the social environment.

Cumulative Effects

Effects to individual pack station economics (changes to costs and revenue) is discussed in the Operations section. Clearly the economic impacts on tourism locally, regionally, and nationally will affect the packing industry and individual businesses over time, however there are no known past, present or foreseeable actions (e.g. no changes to tourism or business tax structure, major limitations to visitation to the regional national parks, increase in fees for land use rental, etc.) that would result a cumulative effect to the pack station industry in the analysis region of Mariposa, Madera and Fresno counties.